

# NetworkWorld

The newswkely of enterprise network computing

October 2, 2000 Volume 17, Number 40

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## Keep Your LAN Heading in the Right Direction

### State of the LAN<sup>SM</sup>: Implementing the New Best Practices

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"State of the LAN" series.

*Presented and moderated by:*  
**Kevin Tolly**, President and CEO, The Tolly Group  
**John Gallant**, Executive Vice President  
and Editorial Director, Network World

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# Keep Your LAN Heading in the Right Direction

## State of the LAN<sup>SM</sup>: Implementing the New Best Practices

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Learn from Kevin Tolly, President and CEO of The Tolly Group, John Gallant, Executive Vice President and Editorial Director of Network World, and leading LAN providers. Their insights on how to keep your LAN moving in the right direction breathe new life into your current approach to LAN management.

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The format of the Network World State of the LAN Town Meeting is unparalleled. The unique mix of keynote presentation, product overview and strategy discussions delivered by these experts is unmatched in the industry. The hottest LAN issues, such as where to invest your scarce time and resources, network management and convergence are all on the agenda. This is also your opportunity to meet face-to-face with established and new LAN providers and explore how their product strategies will impact the way you get your job done.

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- Which Quality of Service mechanism is best for your applications?
- How can you implement effective network management on high-density, high-speed switched networks?
- What combination of bandwidth, aggregation schemes, convergence and re-routing mechanisms is necessary to reach "five 9s" availability?
- How can the merged data, voice and video network unleash previously unthinkable converged applications?
- What are the critical elements of building a Gigabit-class cabling infrastructure?
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**Kevin Tolly**



**Kevin Tolly** is President and CEO of The Tolly Group, the industry's most respected independent testing company. He is also the founder of Tolly Research. The Tolly Group has evaluated virtually every important networking technology to appear over the past decade. Tolly writes regularly for *Network World* and other publications. Tolly lectures on cutting-edge networking topics in North America, Europe and Asia. He serves on the advisory boards of the COMNET and ASPWorld conferences.



**John Gallant**



**John Gallant** is Executive Vice President and Editorial Director of *Network World*, one of the fastest-growing publications in the computer and communications industry. With more than 16 years of experience covering this industry, Gallant sets the strategic direction for the newsweekly, which serves 165,000 network IS managers. As Executive Vice President, he also guides Network World Publishing, Inc.'s other editorial ventures.

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If you would like to become a sponsor of this event, please contact Andrea D'Amato at (508) 490-6520 or [adamato@nww.com](mailto:adamato@nww.com).

For a listing of vendor panel participants, turn to the inside back cover of this wrap.

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The leader in network knowledge

# NetworkWorld



October 2, 2000 Volume 17, Number 40

The network portal: www.nwfusion.com

## Industry readies for optical, IP convergence

BY JIM DUFFY

ATLANTA — The worlds of IP routing and optical switching are fast converging, if last week's NetWorld+Interop 2000 is any indication.

Optical networks were on the lips and minds of many attendees, from the largest makers of equipment for service providers to the smallest start-ups tucked away in the farthest reaches of the vast Georgia World Congress Center exhibition hall.

For users, the convergence of the IP and optical worlds could affect the speed and price at which next-generation services are offered. Virtually all multimedia IP services being provisioned or planned rely on the integration of IP and optical networks, observers say.

But there are many open  
See **Optical**, page 95

**NETWORLD + INTEROP**  
**More Interop news**

- **Caldera, Red Hat aim to simplify Linux net administration. Page 8.**
- **Outsourced management services debut. Page 12.**
- **Our reporter's notebook looks at the lighter side of N+I. Page 12.**
- **Users, ISPs warned of potential denial-of-service attack liabilities. Page 16.**

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**More online**  
Get all the news from the show in one place: **DocFinder 1144.**

## IETF spec could propel Internet telephony

BY CAROLYN DUFFY MARSAN

Think of it as directory assistance for the 'Net.

The Internet engineering community has developed a technology that lets you type a telephone number into your Web browser and find a corresponding URL, e-mail address or IP address. Called Enum, the new technology integrates the world's telephone numbering plan with the Internet's Domain Name System (DNS) to power a new class of online telephony services.

The Internet Engineering Task Force (IETF) published its Enum specification as a proposed standard in September. Last week, Telcordia Technologies and VeriSign announced

the first large-scale test of Enum services. And network vendors such as Cisco, Lucent and Nortel Networks are expected to ship Enum-compliant products next year.

Why all the buzz about Enum? Because it's considered a key enabling technology for the anticipated convergence of the public switched telephone network and the Internet.

For corporate network managers, Enum offers the poten-

tial for each employee to have a single contact for communications devices, including PCs, fax machines, handheld computers, cell phones and pagers.

"Enum may enable the corporate phone group to manage the mapping between phone numbers and per-user lists of URLs, where the URLs tell the caller how to contact the callee via phone, e-mail, fax, etc.," says  
See **Enum**, page 94

## Retailers get stores, Web sites in sync

BY ELLEN MESSMER

SAN DIEGO — Many of the nation's largest retail chains, including The Home Depot, JC

Penney, K-mart and Service Merchandise, are synchronizing their brick-and-mortar stores with Internet e-commerce sites.

To turn store managers and clerks into cheerleaders for Internet-based sales, some retail chains have resolved to credit Web sales to local stores based on the buyer's ZIP code. A few, such as JC Penney, are even pushing close-out merchandise through Web auctions. Such efforts are dispelling early worries in retailers' minds about the possible negative effect of Internet-based commerce. For example, retailers let goods  
See **E-comm**, page 95

**B2B**  
**E-markets**  
PAGE 59

Internet trading floors can speed corporate purchasing but there are risks associated with third-party brokers.







# **ANNOUNCING** **SOLUTIONS FOR** **THE NEW, NEW** **ECONOMY.**

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- Don Henley, musician, environmentalist

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# NetworkWorld

OCTOBER 2, 2000

- 8 Benhamou steps down as **3Com** CEO.
- 8 Vendors bolster **Linux** wares.
- 10 **Nextlink** ditches its name, pitches bundled services.
- 10 **10-Gig Ethernet** gets talked up at NetWorld+Interop.
- 12 **Management service providers** debut hosted offerings.
- 12 **Reporter's Notebook:** The latest from NetWorld+Interop.
- 14 **Software** lets retailers, distributors share information.
- 14 **Sun** revs up powerful workstations, free software.
- 16 Forum members warn of **DDoS** legal liabilities.
- 16 **Check Point** to manage extranets.
- 16 **Exodus** to acquire Global Crossing hosting subsidiary.
- 18 **Microsoft Datacenter** missing key applications.
- 18 Delays hit **Lotus' Raven** search engine release.



Benhamou steps down

Page 8



Pity the fool

Page 12

## Infrastructure

- 21 Server vendors hail **Microsoft Datacenter**.
- 24 **Quad** boosts streaming media performance.
- 26 **3Com** targets IP telephony with new phone gear.
- 30 **Kevin Tolly:** A digital utility two decades in the making.

## Carriers & ISPs

- 33 **AT&T** advances ATM service offering.
- 33 Carriers urged to **trade bandwidth** on exchanges.
- 34 **David Rohde:** Taking stock of just-in-time net services.

SPECIAL FOCUS: DSL AND VPNS. *More organizations are finding DSL a bargain for their VPN needs.* **Page 36.**

## The Edge

- 39 **Brix** supplies tools to verify service-level agreements.
- 39 **Lucent** pairs carrier management with enterprise portal.
- 42 **Sycamore** shoots for long reach, high capacity.

## Enterprise Applications

- 45 **Retailer Jos A. Bank** gives Web site new look.
- 45 **Data-mining service** targets e-business sites.
- 46 **Web agent technology** addresses privacy needs.
- 46 **Microsoft's SMS** gets a boost.
- 48 **Scott Bradner:** Vague remembrances of home.

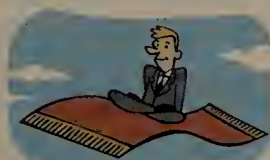
## Technology Update

- 53 **Multiservice** provisioning platforms mature.
- 54 **Gearhead:** DHCP feedback and a puzzle.



Luzi discusses Web site

Page 45



Can you be a net consultant?

Page 75

## B2B Features

Web-based trading floors bring buyers and sellers together at Internet speed. **Page 59.**

CRM: Should you implement your own system or outsource it to an application service provider? **Page 64.**



Invacare's upgrade: Medical equipment maker turns to wireless to speed product distribution. **Page 69.**



Shomiti's Surveyor Version 3.1 network monitoring package isn't yet ready for takeoff. **Page 71.**

## Management

**Flying solo:** Do you have what it takes to be an independent network consultant? Take our quiz to find out. **Page 75.**

**Editorial:** Approaching security with military tools. **Page 56.**

**Kevin Fong:** What's in store for storage. **Page 57.**

**James Kobielski:** B2B is ideal test bed for XML Digital Signatures. **Page 57.**

**Backspin:** Sinners? Amen, Brother Gibbs! **Page 98.**

**'Net Buzz:** Tracking the latest at NetWorld+Interop, GPS-style. **Page 98.**

Net Know-It-All .....	Page 10
Ask Dr. Intranet .....	Page 53
Message Queue .....	Page 56
Editorial and advertiser indexes .....	Page 93

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THIS WEEK  
ONLINE

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## Happy birthday to Fusion

*Five years already?*

Fusion Executive Editor Adam Gaffin looks back on the early days of the Web site and gives a sneak peek at where it's going. **DocFinder: 1128**

*Technology: Then and now*

Staff Writer Jason Meserve takes you for a ride in the Wayback Machine and shows you what technologies were hot in 1995. **DocFinder: 1129**



## SEMINARS & EVENTS

### Network Storage: Revving up to maximum capacity

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## FORUMS

### Young and worried CNA

A recent graduate with Novell certification grows concerned in his job search — everybody seems to want Microsoft or Cisco certification instead. What's he to do? **DocFinder: 1131**

### XML in the enterprise?

The darling of the Web set is struggling for acceptance in the enterprise. **DocFinder: 1132**

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## BARNEY'S RUBBLE

*The best of the NetFlash daily newsletter*



### Surf and be happy

Feeling guilty because you waste all day at work browsing through wrestling, motorcycling and true crime sites? Stop sweating and show your boss this story. According to a recent study, folks who browse on the job are happier (I can believe that) and more productive (now that's more of a surprise).

Of course, the people polled are the workers. I wonder if a poll of bosses would show different results. **DocFinder: 1138**

### Ford CEO Nasser outlines five rules of change for e-business

The CEO of Ford took some time away from yelling at Firestone to lecture us all on the future of e-business. Jaques Nasser has five rules that shape his approach to e-biz. According to Nasser, the customer is in charge (so which of us told him to build the Fiesta?), technology is reshaping everything (how else can you explain the pinnacle of engineering that is the '87 Ford Escort), and selling a stand-alone product is no longer enough (great, so now Ford will keep badgering me to buy Escort aftermarket products).

**DocFinder: 1139.**

### Handspring launches VisorPhone

Handspring has done the near-impossible — bringing together two of the most annoying devices known to man. The Palm-style vendor has combined a handheld computer and a cell phone to form something more distracting than a cigar in a day care center. Because I like to aggravate those around me, I will absolutely pick up one of these \$300 beauties. **DocFinder: 1140.**

— Doug Barney, executive editor, news

Sign up for this e-mail newsletter online. **DocFinder: 3850**

## COLUMNISTS

### Keeping Current

*Peering outside*

Now's the time to look at outsourcing your network management, Fred McClimans writes.

**DocFinder: 1133**



### Compendium

*Geek love*

Fusion Executive Editor Adam Gaffin tells you about what happens when geeks reproduce.

**DocFinder: 1134**



### View from The Edge

*Who wants to blow up their network?*

Edge Managing Editor David Rohde says you should take a look at Zhone Technologies. **DocFinder: 1135**





## NEWS BRIEFS, OCTOBER 2, 2000

**Coming down on both sides of the smart phone fence**

Motorola last week partnered with Palm to co-develop smart phones based on Palm software. Motorola plans to market Palm co-branded phones in early 2002. The deal caused some consternation in the Symbian camp — of which Motorola is a big part. Symbian, a consortium led by Psion, Europe's largest handheld computer maker, is developing software for next-generation mobile phones and portable computers based on EPOC, a rival software operating system to Palm's, and is planning to launch a slate of Symbian-based phones in 2001. Observers say Motorola is looking to hedge its bets.

**New language of business?**

IBM and Microsoft have developed a language standard for the new Universal Description, Discovery and Integration (UDDI) business directory, which is designed to fuel business-to-business commerce. The proposal, called Web Services Description Language, is a mixture of IBM's Network Accessible Services Specification Language and Microsoft's Simple Object Access Protocol (SOAP) contract language. SOAP uses XML to provide a common messaging format to link applications and services anywhere on the Internet regardless of operating system, object model or programming language. The companies are evaluating the appropriate path for submitting the specification to the industry as a draft for standardization. A coalition of 36 vendors and consultants are working on the UDDI business directory, which, at its core, will be an XML-based holding tank for what businesses do, the services they offer and how they interface with their computing systems.

**Supreme Court rebukes government's Microsoft proposal**

The Supreme Court last week passed on hearing the appeal of the antitrust judgment against Microsoft and instead recommended the case go back to the appeals court. The move rejected the government's proposal to skip the appeals court, and guarantees the break-up order against Microsoft will be on hold for at least another year. Microsoft this week will submit a brief proposing a schedule for how the appeals court should proceed. The govern-



**Microsoft CEO Steve Ballmer remains confident in the appeals process.**

ment's reply is due by Oct. 5. Microsoft CEO Steve Ballmer called the move "procedural" and says the company remains confident it can win on appeal.

**Cisco Snaps Up Vovida and IPCell**

Cisco last week said it will spend \$369 million in stock to buy two companies: Vovida Networks, a maker of communications and network protocol software; and IPCell Technologies, which provides software for combining IP and telephony services over broadband networks. Cisco said the purchases would enable the creation of applications for service providers, while accelerating the transfer of voice, video and data over packet networks. Software offered by IPCell and Vovida is complementary to Cisco's IOS software and is interoperable with Cisco's voice gateways, Cisco said.

**Intel announces voice portal**

Intel last week announced an integrated hardware and software platform for e-business applications that lets Internet users obtain information from the Web using regular telephones and voice commands. This "voice portal" platform is based on Intel servers and digital signal processing cards, plus continuous speech processing and speech-recognition software. The voice portal has intelligence built in that recognizes where the caller is, and it makes assumptions about the information the caller might want based on what he has already requested. For example, if a caller asks about the weather in Boston, then asks for movie listings, the system assumes the caller wants movie listings in Boston.

**Storage: A LAN of its own?**

This Friday on the *Networked World* Webcast, join experts online to discuss whether you need a separate LAN only for your storage traffic. What are the best storage options for your company? Register now for the live broadcast, airing Oct. 6 at 1 p.m. EST. ([www.nwfusion.com](http://www.nwfusion.com), Doc Finder: 9932).

**Carnivore gets a deeper look**

The U.S. Department of Justice last week awarded a \$175,000 contract to the Illinois Institute of Technology to have a team of researchers there carry out a review of the so-called Carnivore network sniffer the government developed as an investigative tool for Internet law enforcement. Civil liberties groups have asserted that Carnivore may violate privacy rights by capturing more than just the targeted suspect's data. Facing the uproar over Carnivore, the Justice Department agreed to let an outside organization review the intercept tool's source code. The source code won't be released to the public, and government officials say they will exert editorial control over the Institute's report on Carnivore when it's ready.

# Benhamou to step down as 3Com CEO

BY PHIL HOCHMUTH

Eric Benhamou last week announced he will step down as CEO of 3Com in a move that could be seen as the end to a year-long, tumultuous restructuring campaign.

Benhamou, 45, who has led 3Com the past 10 years, will step down on Jan. 1, when Bruce Claflin, 48, 3Com's current president and chief operating officer, will take over as CEO.

Benhamou's departure comes as 3Com completes a major restructuring program aimed at improving profitability by focusing on high-growth areas. Among the changes, 3Com has exited the large corporate LAN/WAN and analog modem businesses and has let go of the first of an expected 2,000 to 3,000 employees. The company also spun off its Palm division, which has become a highly successful venture in only a few months.

As chairman, Benhamou will work with Claflin to guide the company in its business strategy and technology direction.



**After 10 years at the helm of 3Com, CEO Eric Benhamou will give up that post Jan. 1.**

He also plans to become more active in trying to influence IT policy and the direction of the IT industry.

Days before Benhamou's announcement last week, the company released its first-quarter financial results, reporting a net loss of \$41.3 million, or 12 cents per share, on sales of \$933.3 million. That beat the expectations of analysts, who had predicted the firm would

See **3Com**, page 14

## Vendors bolster Linux wares

BY DENI CONNOR

ATLANTA — Caldera is expected to announce software today that will manage hardware and software while performing health checks of corporate Linux servers, workstations and devices.

Caldera's Cosmos is a Web-based utility that manages networks running Linux versions that support the Reliable Package Manager (RPM), a standard method for installing programs. Among Linux distributions that use RPM are Red Hat, SuSE, TurboLinux and Caldera.

Cosmos lets customers schedule tasks to perform software monitoring or software distribution to local or remote servers and worksta-



tions. The software can use Active Directory, eDirectory or iPlanet directory as a data or inventory repository. The software will also provide alerts if errors occur and report them to management consoles, such as Hewlett-Packard's OpenView, the Tivoli Enterprise Console or Computer Associates Unicenter-TNG. Cosmos will be available by year-end and is licensed by server and number of nodes monitored.

Caldera's announcement comes hard on the heels of a

See **Linux**, page 94





## AT 178 MPPS, WHO CARES ABOUT AERODYNAMICS?

Scaling up to 178,000,000 packets per second of throughput and 480 Gigabits per second of total switching capacity, the BigIron family of Layer 3 switches leaves competitors floundering in its wash. This isn't just a revolution in speed.

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Ethernet ports, BigIron offers the highest Gigabit density per rack in the industry. And BigIron supports multi-protocol routing including IP,

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**FOUNDRY**  
NETWORKS



# Nextlink ditches its name, pitches bundled services

Newly-named XO Communications claims to offer cheaper local voice, long-distance, 'Net access and Web hosting packages.

BY DENISE PAPPALARDO

MCLEAN, VA. — Nextlink Communications wants you to forget its name but remember its low-ball pricing and bundled services.

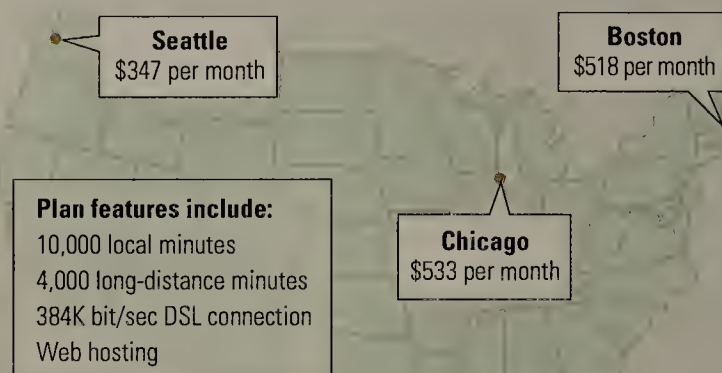
Now called XO Communications, the service provider last week announced 11 bundles aimed at small to midsize businesses, which XO defines as 10 to 100 employees.

Each of the Xoptions Flat Rate Service Packages contain the same four elements — local voice, long-distance voice, dedicated Internet access and Web hosting. They differ, however, based on the number of minutes required and the type of connection — DSL or dedicated line.

The company is also offering a 90-day satisfaction guarantee. If a customer is not fully satis-

## XO's service bundles

XO Communications says customers can save up to 39% when they buy its Xoptions Flat Rate Service Packages. Here's a sample of how much the bundles cost from city to city.



fied with his XO service, the company will switch that user back to his previous provider free. But XO seems confident.

"It's a service-level guarantee that customers will never

need," claims Nancy Gofus, executive vice president of marketing and customer care at XO.

While the packages are the same from market to market,

prices will differ based on location. For example, a customer in Chicago who buys 10,000 local calling minutes, 4,000 domestic long-distance minutes, a 384K bit/sec DSL connection and Web-hosting services will pay \$533 per month. A customer in Boston will pay \$518 per month for the same service. XO says its prices are 22% to 39% less expensive than incumbent local exchange carriers in Chicago and Boston, respectively.

One analyst agrees that these types of bundled services can be less expensive. Customers who today buy local, long-distance, Internet access and Web hosting separately can save money through bundling, says Jamie Mendelson, an analyst at the Washington, D.C., consulting firm The Strategis Group. Bundles are also easier to buy and understand, Mendelson says.

The service provider also plans to roll out a set of Ethernet Services that will let customers set up a LAN across a metropolitan area. XO will support 10M bit/sec, 100M bit/sec and 1G bit/sec LAN speeds when it launches its Ethernet Services in November.

This service is more geared toward midsize to large business users who have higher bandwidth requirements, Gofus says. Yahoo is XO's first Ethernet Services customer and is currently using the service in the Bay area. XO did not say which of its 51 markets will offer Ethernet Services beyond the Bay area nor would it disclose pricing.

XO also did not comment on which equipment vendor products it will use to support the new service.

XO: [www.xo.com](http://www.xo.com)

# 10-Gigabit Ethernet technology picks up steam

BY PHIL HOCHMUTH

Low-cost, high-speed 10-Gigabit Ethernet technology capable of sustaining networked applications, such as VPNs, IP telephony, LAN services and e-commerce, is the wave of the future, according to a number of users, analysts and standards body representatives.

The high-speed Ethernet technology has been going through some growing pains, but there were signs at last week's NetWorld+Interop 2000 that it is on track to become a cost-effective backbone network offering.

For example, at a session on 10-Gigabit Ethernet standards, Jonathan Thatcher, chair of the 802.3ae 10-Gigabit Ethernet standards group, discussed a recent stir in the end-user community. Some proposals in the 802.3ae standard would have excluded

the use of low-cost fiber-optic components for multi-mode fiber, leaving only expensive options.

"Our initial set of objectives was screwed up," Thatcher says. The support for multi-mode fiber has since been added back to the standard draft, which would allow 10-Gigabit Ethernet to run on the kind of fiber installed in most corporate networks.

With standards controversies out of the way, members of the 10-Gigabit Ethernet Alliance discussed the future of the technology, outlining some details of the LAN physical layer (PHY) specifications in 802.3ae.

Bob Grow, vice president of the 10-Gigabit Ethernet Alliance, says the LAN PHY will also support Remote Monitoring and SNMP protocols, as



well as link aggregation. This will help service providers better manage the 10-Gigabit Ethernet pipes they sell access to and help enterprise users manage the 10-Gigabit backbones they deploy.

## Run over long distances

Additionally, the proposed LAN PHY will be able to run LAN traffic over long distances when wave division multiplexing technology is used in WAN equipment, Grow says.

"You can essentially have the LAN PHY running across the country if you choose to do so," he says.

Extending Ethernet to the WAN will let users have a common technology running across private and public networks, he adds.

Some analysts say 10-Gigabit Ethernet products will probably not ship by year-end because users are not yet requiring that

level of bandwidth.

Kamran Sistanizadeh, chief technology officer of Gigabit Ethernet service provider Yipes, disagrees.

"I used to think years ago that there would be ATM to the desktop, but Fast Ethernet got rid of that idea," Sistanizadeh said during a user/analyst question-and-answer session on 10-Gigabit Ethernet at Interop.

"The same thing will happen with Gigabit Ethernet" in backbones and service provider networks as 10-Gigabit becomes more accepted and is taken advantage of, he adds.

"There is definitely a need today for 10-Gigabit Ethernet," he adds. "We actually have customers asking for capacities that call for that kind of speed."

Shawn Jackman, chief technology officer of InternNetwork, agrees with Sistanizadeh. His company in Palo Alto matches college students with companies that require short-term staff.

"Right now 10-Gigabit seems like a lot, but I'm sure it wouldn't take us too long to

find uses for it," Jackman says. That amount of bandwidth would also allow service providers to be flexible with the variations of their data service pipes, he adds.

"If you have a provider with a 10-Gigabit backbone, you could pay them for the bandwidth you need in chunks when you need it; that would be very important to us," he says. ■

## A rising star

Analysts predict that 10-Gigabit Ethernet will account for 17% of combined Gigabit Ethernet and 10-Gigabit Ethernet revenue by 2004.

SOURCE: CAHNNERS IN-STAT GROUP, SCOTTSDALE, ARIZ.

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# Outsourced management services make debuts

*PatchLink.com and @Manage aim to take the complexity out of network management.*

BY MICHAEL MARTIN

ATLANTA — Management service providers used last week's NetWorld+Interop 2000 show to roll out hosted offerings designed to let companies monitor their network and Internet resources without installing new systems and software.

The Scottsdale, Ariz., firm PatchLink.com introduced its eManagement Services, which includes three products.

PatchLink Update lets companies distribute software and documentation updates to any Internet-connected computer. The service works by having network administrators define packages they want distributed and then uploading them to PatchLink's data center, which distributes the software to users.

The Update service uses and supports agents for Windows 95, 98, NT and 2000, network and Linux. System requirements are Windows 95, 98, NT or 2000 operating system, and Microsoft Internet Explorer 5.X.

PatchLink Monitor allows companies to get information on the availability of Internet or network services. If a server goes down, network managers are notified via e-mail or pager.

PatchLink HelpDesk is an Internet-based service that ties together IT staff from separate locations and lets them coordinate on troubleshooting.

Sean Moshir, PatchLink's CEO, says his company's technology doesn't require corporations to open holes in their firewalls or build a VPN to access the services. Instead,



PatchLink uses patent-pending technology that takes advantage of the HTTPS protocol, the secure version of HTTP, to communicate over existing ports.

PatchLink's services, which run out of an AT&T data center, are available now from the company's Web site. The Update service costs \$50 per server agent per month and \$3 per workstation per month. Monitor costs \$10 per URL per month. HelpDesk is priced at \$13 per administrative user per month.

The services can also be bought as software that can be installed on distributed corporate networks. The enterprise

version of Update is \$600 per server and \$40 per workstation. Monitor is \$75 per URL and HelpDesk is \$120 per administrator.

@Manage in Sunnyvale, Calif., is also concentrating on security-conscious businesses with its Secure@Manager service, which can be downloaded from @Manage's Web site or installed via a dedicated box on a corporate network.

Secure@Manager polls systems, applications and devices on Unix and NT networks every five minutes, encrypts the data through Secure Sockets Layer (SSL) and sends it back to the @Manage data center, which is located in an Exodus facility. Customers can access their network statistics via a browser. Browser sessions are protected by SSL.

The service also includes preconfigured performance thresholds. If the thresholds are exceeded, network managers will be alerted via pager, e-mail, fax or an event console.

Unlike @Manage's first product, @Manager, Secure@Manager does not require customers to open a port on their firewalls for the service.

The service supports NT 4.0, Red Hat Linux 6.0 and Sun Solaris 2.X. Netscape and Microsoft browsers can be used with Secure@Manager. Web servers supported include Apache 1.3+, Netscape Enterprise 3.5+ and Microsoft IIS 3.0+. Secure@Manager costs \$100 per URL per month and \$400 per device per month.

PatchLink: [www.patchlink.com](http://www.patchlink.com); @Manage: [www.atmanage.com](http://www.atmanage.com)



## Reporter's Notebook

A LOOK AT THE LIGHTER SIDE OF N+I

### Where have all the powers gone?

Five years ago, four companies dominated the corporate infrastructure market and had some of the biggest booths at Interop: Cisco, 3Com, Bay Networks and Cabletron. Cisco was the only one here last week. Nortel Networks, which acquired Bay Networks two years ago and had a large booth at Interop in Las Vegas this spring, was not on the floor, nor were 3Com or Cabletron's Enterasys enterprise subsidiary. Nortel Networks cited economic reasons and said the company will be back at Interop next spring. The company said it remains committed to the enterprise market.

### Penguin gear is so last month

The Linux vendors were out in full force and drawing impressive crowds, but that ubiquitous penguin icon was clearly not the most popular giveaway item among the open source crowd. Countless conventioners were seen sporting BSDi's red devil horns as they wandered the Georgia World Congress Center.

### Just 'plane' loud

No company created more of a buzz — literally — than did security vendor Recourse Technologies, which hired an airplane to drag an advertising banner around and around... and around... the convention center on Tuesday. The incessant droning of the plane was audible inside the building, which created a ripple buzz as show-goers commented on the racket.



### Rockin' loud

One of the hottest tickets at Interop was a Sheryl Crow miniconcert that was put on during Avaya's party at the Tabernacle Wednesday night. The company, which will officially spin off from Lucent this week, gave away tickets to the show to Interop atten-

dees at their booth. Crow played hits from her last three albums and did a two-song encore. And to her credit, she even pronounced Avaya correctly when she welcomed the crowd of more than 2,000 fans.

### Is 'T' for technology?

You've got to pity the fool who looks up from an Interop show-floor demo of 21st century technology to catch a glimpse of 1980s TV icon Mr. T. Same trademark haircut, same hulking presence. While shaking a hand, "T" could be heard saying, "I know, you can't believe it, can you?"


### The ubiquitous Mr. Schmidt

Novell CEO Eric Schmidt may be tempted to turn to Mr. T's "A-Team" if his company's misfortunes do not abate. Whatever the future holds, no one can accuse Schmidt of failing to put himself in front of the right audiences, as he is to the trade show keynote address what Federal Express is to package delivery. Overexposure may be a risk, however, because Schmidt's talk Wednesday filled only two-thirds of a hall that was standing room only for Hewlett-Packard CEO Carly Fiorina 24 hours earlier. ... Speaking of Schmidt and the future, there's a rumor circulating that Novell's top guy may be in line for a "technology czar" role if Vice President Al Gore wins the presidency and Schmidt's current day job becomes untenable.

— Compiled by Network World staff







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# Software lets retailers, distributors share info

*CommercialWare package establishes repository on customer orders.*

BY ELLEN MESSMER

NATICK, MASS. — CommercialWare next month intends to ship a Web-based application that will let online retailers share real-time information about order and shipment status with direct shippers, distributors and others involved in order fulfillment.

Available for Windows NT and Solaris, Collaborate.dot.commerce lets retailers establish a repository for information concerning orders, including when items are shipped or returned. This is useful given that Internet-based retailers and print catalog houses often do not maintain warehouses with all the items they sell, making it difficult to track

items that, for example, get shipped directly to the customer from a distributor.

Using a password, distributors can gain access to Collaborate.dot.commerce to alert retailers if an item can't be shipped.

Retailers can make change orders, such as customer requests for cancellation or alternate merchandise. When changes are made, the software can send e-mail, a letter or fax to other parties in the supply chain.

If an e-mail alert is sent to a distributor, it will contain a URL that will take the distributor to the exact change order request that's been entered into the Collaborate.dot.commerce application by the retailer. The retailer can then click

on the distributor's response to fulfilling that request.

Collaborate.dot.commerce, which can cost from \$100,000 to \$300,000, can also send and receive data from commerce servers and online applications supporting XML, electronic data interchange or ASCII file formats if the retailer and distributor want to automate the exchange of fulfillment information.

Paige Laflamme, director of MIS at Garnet Hill, which has a print catalog and online store operations for its women's clothing and furniture items, says her company is evaluating Collaborate.dot.commerce.

"Today, we phone our drop/ship suppliers to make changes when customers request them,

but this should allow faster exchange of information," Laflamme says. "We can also share data and do forecasting with our vendors [using this software]."

CommercialWare also sells an application called Retail.dot.commerce for inventory management that can be used with the new application (see related story, page 45).

The company's Collaborate.dot.commerce software

will compete with offerings from Oracle and start-up Yantra.

CommercialWare: [www.commercialware.com](http://www.commercialware.com)

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# Sun revs up Grid Engine server

BY JOHN COX

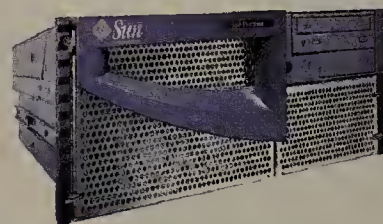
NEW YORK — Along with its long-awaited UltraSparc III microprocessor, and the first computers to use it, Sun last week released free software that could result in some customers buying fewer of the new systems.

Sun's Grid Engine server software lets compute-intensive jobs, such as simulations, run over up to hundreds of otherwise idle processors on a network.

Grid Engine was developed by Gridware, a company Sun acquired in July. The software has a load-balancing algorithm that matches the jobs to be done with available processors and queues up job requests based on priorities. A graphical user interface lets administrators view reports on users and the status of the jobs.

Grid Engine (available for download at [www.sun.com/software/gridware/](http://www.sun.com/software/gridware/)) will be loaded on all Sun workstations, including the Sun Blade 1000 line of UltraSparc III computers announced last week.

Sun will also incorporate the software as part of its Sun Technical Compute Farm, a



**The new Sun Fire 280R server includes two UltraSparc-III processors, software-mirrored hot-plug boot drives, and fits in standard 19-inch racks.**

rack-mounted set of Sun servers designed to act as a single, high-performance computer. Sun engineers are porting the software to operating systems other than its own Solaris and will be working with software vendors to embed Grid Engine APIs into their applications, which will then be able to participate in the job assignments. Finally, Sun will create an open source license for Grid Engine to foster wider adoption and ongoing improvements.

"The Grid software is interesting," says Toni Sacconaghi, a research analyst at Sanford C. Bernstein, a New York investment research company. "If you're currently using only about 60% of your compute resources, this software can boost that to 80% or 90%,

according to Sun. But will that have an effect on demand for Sun's [hardware]? That's hard to say right now."

Grid Engine is touted as part of Sun's Net Effect Strategy, also unveiled last week at an event hosted by Sun President Ed Zander. The strategy is to deliver computers and software that can handle the flood of digital information flowing in and out of computers on high-speed networks.

The 64-bit UltraSparc III chip, delayed almost two years because of its complexities, is not only faster than the UltraSparc II: It's faster in particular ways — the speed at which it can move data to disk drives, memory chips, other UltraSparc III processors and the network.

The chip will appear in a new server line later this year. The first member of that line will be the Sun Fire 280R, a rack-mounted device for data centers and service providers. It can include one or two UltraSparc III 750-MHz CPUs, dual power supplies and disk drives, a 10/100Base-T Ethernet port, and Sun software for systems recovery and remote management. Pricing will start at \$10,000. ■

## 3Com, continued from page 8

lose 34 cents per share. In the same quarter last year, 3Com earned \$113.7 million, or 32 cents per share, on sales of \$1.2 billion. The \$933.8 million in sales included \$127.5 million from the exited analog modem and LAN/WAN high-end chassis businesses. Excluding those sales, 3Com recorded sales of \$806.3 in the quarter, up 20% from the fourth quarter.

3Com's results were in sharp contrast with Palm, which reported record revenue of \$401 million for its first fiscal quarter of 2001 — its first as a separate company from 3Com — along with a net income of \$17.3 million. Palm's market capitalization is more than \$30 billion while 3Com's is now a little more than \$6 billion.

Benhamou's departure comes at the right time because 3Com has almost totally reinvented itself from what it was under his leadership, says Frank Dzubeck, president of Communications Network Architects, a Washington, D.C., consulting firm.

"Now the Palm thing is over, the US Robotics thing is over . . . [3Com] is out of the [large] enterprise business . . . it's a good time to exit, stage left. At least he's leaving on a good note," Dzubeck says.

As for the future of 3Com, Dzubeck sees a continuation of 3Com's current course with Claflin at the helm — a strong focus on service providers with its CommWorks software product line and small/midsize businesses and consumers

with its stackable switches, NBX telephony, OfficeConnect and home network products.

One 3Com user sees the move as positive for the vendor's new market focus.

"As long as 3Com continues to care and feed for the edge equipment business and their LAN telephony products, I don't see any problems," says Walt Crosby, chief technology officer of RoweCom, a Cambridge, Mass., maker of software that helps businesses buy research books, journals and periodicals online. Crosby uses 3Com 3300 switches in his network, and 3Com's NBX LAN telephony system and IP phones.

As 3Com becomes more focused on service provider, Internet appliance and consumer markets, Crosby says businesses of his size (about 250 end users) are still a sweet spot for 3Com that the firm will try to improve on.


"Claflin should be able to take them forward in that direction," he adds. ■

## Corrections

The story "IP PBXs scale for the enterprise" (Sept. 18, page 73), failed to mention that Sphere Communications responded to the Mier Communications survey.

The story "Tidepoint seeks to take complexity out of e-business" (Sept. 25, page 12), contained an incorrect URL. Tidepoint can be reached at [www.tidepoint.net](http://www.tidepoint.net).





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# Forum warns of hidden DDoS legal liability

BY TIM GREENE

ATLANTA — Corporations and ISPs could be held liable for unwittingly allowing computers on their networks to become pawns, or “zombie” machines, in distributed denial-of-service attacks that harm customers or other companies.

That was one message last week from an industry consortium set up to fight the distributed denial-of-service threat. The consortium, dubbed the RFC 2267-plus Working Group, unveiled itself at NetWorld+Interop 2000 (www.nwfusion.com, DocFinder: 1051).

“It might not be enough to say they were not aware they could become a zombie,” says Frank Huerta, CEO of Recourse Technologies, one consortium member. The group gets its name from RFC 2267, the Internet router filtering standard that could be used to help thwart distributed denial-of-



service attempts.

If the group develops a body of accepted safe practices, corporate IS executives will have to comply or risk liability if their computers are commandeered to carry out distributed denial-of-service attacks, consortium members warn.

## Risking liability

“Court cases will say, ‘You had a reasonable expectation and maybe you should have been looking for it,’” Huerta says.

Consortium members say while the group is trying to enlist help from Internet equipment vendors, service providers and law enforcement departments, it also needs help from firms linked to the Internet.

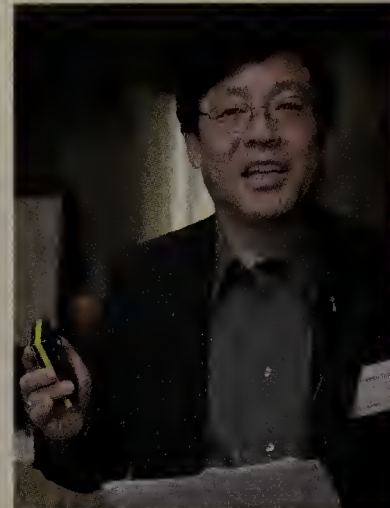
Henry Teng, the moderator of

RFC2267-plus and a KPMG consultant, says the group is promoting the sharing of information about distributed denial-of-service attacks to help companies develop better strategies to limit distributed denial-of-service impact and reduce the chance such attacks will be launched in the first place.

Representatives from Yahoo and eBay, two Web businesses hit earlier this year by one of the largest distributed denial-of-service attacks, say cooperation is essential, even if it means sharing information about networks with competitors.

“A collaborative approach will make for us, as users and companies, an Internet that is more reliable, faster and safer,” says John Zent, manager of risk management for Yahoo.

“This is an industry problem,” says Allen Yousefi, information security officer at eBay. “It’s not just a problem for eBay or Yahoo



KPMG's Henry Teng says sharing of distributed denial-of-service data is key.

or Amazon.com. We’re big names, so we get the attention.”

While the RFC2267-plus Working Group is pushing for cooperation, it has no unified set of answers to distributed denial-of-service attacks yet. However, Allen Wilson, who represented Internet Security Services at the group’s launch,

suggests some practical measures companies can take to avoid distributed denial-of-service attacks and being used as a launch pad for such attacks:

- Establish a response team that maps out your reaction to attacks.
- Audit security of machines in the demilitarized zone between your firewalls.
- Mitigate risks by installing known security software patches and installing an intrusion-detection system.
- Constantly review security; it’s a process, not a one-time project.

ISPs are also worried about liability if their networks fail to detect distributed denial-of-service traffic and head off the flood before it levels its victim, says Tom Clare, a senior product manager for Check Point Software. That concern could lead to changes in service-level agreements ISPs are willing to back, he adds. ▣

## Check Point tackles extranet security

BY TIM GREENE

ATLANTA — Early next year Check Point plans to introduce software that will make it easier to set up and make changes to business-to-business VPNs.

With Extranet Manager, customers will be able to define security parameters that control other business partners’ access to a corporate VPN, for example. These parameters will then be enforced by a central security server.

Control of the VPN security policy is one-sided — a party in an extranet can impose changes to protect its own VPN without the cooperation of the other parties, says Check Point Chairman and CEO Gil Schwed. “You are in charge of defining what is allowed on your [security] server, and once you change something about your server, it automatically gets distributed.” This gives corporations the power to create and tear down extranet links easily with other businesses using Check Point’s gear.

Schwed did not reveal many



details of the product, but he outlined its broad features during an interview last week with *Network World* at NetWorld+Interop 2000. The company has not announced an extranet management product.

The problem enterprise customers face in setting up extranets is that they must allow other business entities to enter their corporate VPN yet maintain security. Each member of the extranet wants to share resources but also maintain its own security.

“Each needs to trust the other but trust the other only to a certain extent and not for

**“It’s not one entity that manages the security of an extranet.”**

Gil Schwed, chairman and CEO, Check Point

the full set of [extranet] VPN policies,” Schwed says. “It’s not one entity that manages the security of an extranet.”

Schwed says Extranet Manager could reside on a service provider’s network or an enterprise site.

He says Check Point also is developing lightweight VPN and firewall software for handheld devices. Those products will let enterprise customers secure links between PDAs and enterprise resources. He would not say when this software would be ready.

Check Point: www.checkpoint.com

## Exodus to acquire Global Crossing hosting subsidiary

BY MICHAEL MARTIN

SANTA CLARA — Web-hosting giant Exodus Communications last week announced that it will acquire GlobalCenter, a wholly owned subsidiary of Global Crossing, in a \$6.1 billion transaction.

Like Exodus, GlobalCenter provides Web-hosting services. The combined company will have 32 Internet data centers, serving nearly 4,000 customers.

As part of the acquisition agreement, Global Crossing will become the primary network provider for Exodus worldwide for the next 10 years. Also, Exodus and Asia Global Crossing will form a joint Web-hosting and managed services venture.

Exodus officials say the deal will allow the company to reduce its operating costs and network expenses.

Separately, Exodus last week introduced two security services: Cyber Attack Management Services and Penetration Test-

ing, which are designed to help Exodus clients assess and respond to security threats.

Cyber Attack Management Services includes intrusion detection, based on Cisco’s Secure Intrusion Detection System, and a 24-7 response team. Exodus has amassed more than 200 security experts in building the team.

The Penetration Testing service will test customers’ abilities to defend themselves from internal and external attacks.

Pricing for Cyber Attack Management Services will be approximately \$5,500 to \$7,500 per month. Penetration Testing service pricing was not available by press time.


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# Microsoft server missing key applications

BY JOHN FONTANA

Microsoft last week threw a wingding of an event to launch its high-end Windows 2000 Datacenter Server but conspicuously absent from the gathering were applications for the platform.

There isn't a single application certified for Datacenter, and Lionbridge Technologies' VeriTest, which is in charge of certification, opened the testing facility just last week. Right now only five applications are set for testing. However, Lionbridge officials say many more are likely to be submitted soon.

Microsoft's SQL Server 2000 is one of the five and may be available as early as this month. The SQL database is a key driver for adoption of Datacenter, which is touted as a highly reliable platform for large databases. In addition, Exchange 2000, which is touted as a killer application for Datacenter,

## On tap for Datacenter

**Lionbridge Technologies', which is conducting certification testing for Datacenter applications, is currently working on five applications.**

Vendor	Application	Type
Microsoft	SQL	Database
BMC	Patrol	System management
Full Armor	Fazam	Policy management
NetIQ	AppManager	Application management
Veritas	Backup Exec	Back-up tools

won't be certified to run on the platform until at least next year, according to Jim Ewel, marketing vice president for IT infrastructure and hosting for Microsoft. While Exchange 2000 should be generally available this month, the software will not support four-node clustering until the release of Service Pack 1.

Four-node clustering is a highlight of Datacenter's reliability

claims, and applications must be designed to be cluster-aware before they can be certified.

"Microsoft is out ahead of its [independent software vendors]," says John Enck, an analyst with Gartner Group in Stamford, Conn. "Datacenter users will demand certified apps so this is an issue, but given the long lead times in deploying this system it's

not likely to become a major issue."

Exchange, SQL and other applications will run on Datacenter now, but certification plays a key role in the tightly controlled Datacenter environment. Datacenter is only available from hardware OEMs that pass a 14-day certification test. Applications that touch the operating system kernel must be certified on the OEM platform and by VeriTest. For example, Compaq will submit for testing back-up, antivirus, and management software for the ProLiant 8500 and ProLiant ML770 Datacenter servers it announced last week, according to Robin Hensley, director of industry-standard servers for Compaq. Applications that don't run through the kernel must only pass VeriTest to get the compatibility logo. ■

**For more Microsoft Datacenter news, see page 21.**

# Delays hit Lotus' Raven search engine release

*Users not likely to get sophisticated knowledge management product until next year.*

BY JOHN FONTANA

Lotus customers clamoring for better search technology from the company will have to wait until 2001 for relief.

At its annual Lotusphere Europe conference in Berlin last week, Lotus said it won't ship the sophisticated search technology that defines its new Raven knowledge management suite but will release the portal interface for the platform in two months.

Raven was expected to ship about three months ago, but testing delays have held up its release. The software has a portal builder and a search component called the Discovery Engine, as well as Domino and Sametime instant messaging.

"The search engine is the primary part of the Raven product we show the most need for," says Paul Meredith, network administrator for Steelox Systems in Mason, Ohio.

Lotus officials admit the Discovery

Engine has been more difficult to develop than projected. The engine is expected to be available early next year.

"They clearly have had a difficult time getting Raven adequately tested," says Simon Hay-

where it can be released."

The Discovery Engine analyzes data and creates a content catalog. The engine also features Expertise Locator, which builds a profile of users to determine "experts." The

president of knowledge management products at Lotus.

In the meantime, Lotus will release Raven's portal product, K-station, for building custom desktops with links to corporate and Web data. It includes a templates for building knowledge management applications. Users can create online collaborative groups using Lotus QuickPlace and Notes databases. K-station also is integrated with Sametime. It is expected to ship in the next 60 days.

Lotus plans to release other products before year-end. Next week the firm will ship Bluejay, which is designed to integrate Microsoft Outlook and Office more closely with Domino R5. Also next week, the Sametime 2.0 instant messaging server will enter beta testing with shipment in the fourth quarter. The server's highlight is support of interactive audio and video over IP.

Lotus: [www.lotus.com](http://www.lotus.com)

## Search party

**Lotus' Raven knowledge management suite includes sophisticated search technology called the Discovery Engine. The suite consists of two core pieces:**

**Expertise Locator:** Builds profiles of users into a searchable repository. The profiles are created by measuring a user's activity with certain subject matter to infer interests and expertise.

**Content Catalog:** Built by probing text stored on the network and analyzing characteristics such as how often a topic is mentioned, and its relationship to other topics and to users accessing documents on that same topic.

ward, an analyst with Gartner Group in Stamford, Conn. "The type of search technology Lotus is developing is in its early evolutionary stages, and that is demonstrated by Lotus' difficulty in getting it to a level

profile is based on a range of criteria, including expertise, skills and experience. "The science of Raven is in the Discovery Engine, and we have to make sure it is thoroughly tested," says Scott Cooper, vice

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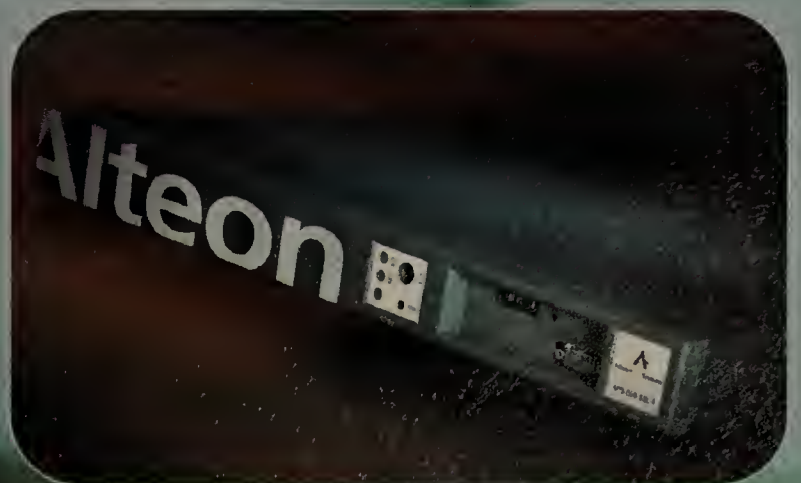
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# Infrastructure

TCP/IP, LAN/WAN Switches, Routers, Hubs, Access Devices, Clients, Servers, Operating Systems, VPNs, Networked Storage

## Briefs

Red Hat shipped Red Hat Linux 7 last week with many new features, including a subscription-based updating service. Linux 7 includes a new installation program for experienced or novice installers that disables some difficult-to-configure security features. The firm has added Secure Sockets Layer and Secure Remote Shell support for added security of transactions and remote support. Linux 7 also includes a new compiler, VPN software for joining Linux routers and for remote dial-up capability, strengthened C++ support, better three-dimensional graphics support, Universal Serial Bus and symmetrical multiprocessing support for up to four processors. Linux 7 ships with Version 2.2 of the Linux kernel; users that purchase Red Hat Network will be automatically updated with the new 2.4 kernel when it is available.

Red Hat standard edition for developers is \$30; the Deluxe workstation edition is \$80; the Professional edition is \$150. The product is available now.

Red Hat: [www.redhat.com](http://www.redhat.com)

Xircom last week introduced its new CreditCard Wireless Ethernet Adapter for laptops to let companies provide employees with cable-free access to corporate networks or the Internet. The CreditCard Wireless Ethernet Adapter is a Type II PC card that is IEEE 802.11b-compatible and provides wireless LAN (WLAN) access. A maximum data rate of 11M bit/sec can be achieved with the WLAN card. Xircom's CreditCard Wireless Ethernet Adapter is available now for Microsoft's Windows 95, 98, NT 4.0 and 2000, and costs \$199 for the 40-bit Wired Equivalent Privacy encryption model and \$219 for the 128-bit WEP encryption model.

Xircom: [www.xircom.com](http://www.xircom.com)

## Vendors hail Microsoft Datacenter

HP, IBM, Dell and others fall in behind Microsoft's high-end operating system.

BY APRIL JACOBS

SAN FRANCISCO — Hewlett-Packard, Dell, IBM and Compaq are among the vendors that have rolled out programs to support Microsoft Windows 2000 Datacenter Server with an eye toward giving customers the ability to cluster more powerful servers and pack lots of storage into configurations aimed at supporting mission-critical corporate applications.

The high-powered servers and storage configurations, introduced last week at Microsoft's Enterprise 2000 event, are intended to consolidate server farms, or support high-end Web and e-commerce infrastructure needs. Observers say vendors offering programs for Win 2000 Datacenter will be competing with each other for users, as well as battling traditional Unix server stalwarts such as Sun.

Datacenter is Microsoft's attempt to compete with well-entrenched, midrange Unix and minicomputer systems that run

mission-critical enterprise applications. The Datacenter operating system is aimed at high-end databases, server consolidations and hosting environments. It features support for up to 32 processors, 64G bytes of memory and four-node failover clustering.

Jean Bozman, an analyst with IDC in Framingham, Mass., says the new Win 2000 Datacenter Servers will finally offer network managers the ability to grow Windows servers beyond eight processors and consolidate some of the servers they have been supporting because of the limitations of Windows NT. The ability to consolidate servers will mean less hardware and software to support — easing the headaches and costs associated with large server farms.

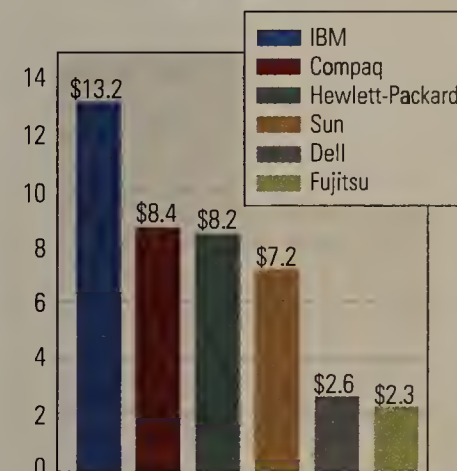
In the HP camp, the firm's configuration for Win 2000 Datacenter Server features four HP NetServer LXr 8500DC systems in a four-node cluster connected via

See **Datacenter**, page 24

### Dell puts chips on Datacenter

Dell hopes its support of Microsoft's Datacenter will help it compete more effectively with traditional rivals.

Worldwide server revenue, 1999 (in millions)



SOURCE: IDC, FRAMINGHAM, MASS

## Cisco moves to secure e-businesses with Safe

BY JIM DUFFY

ATLANTA — Cisco last week announced a blueprint for securing enterprise networks engaging in e-commerce.

The blueprint, called Safe, advises customers on how to embed security into their e-business infrastructures so they can safely transact business over the Internet. The strategy is based on Cisco's Architecture for Voice, Video and Integrated Data, which encompasses client devices,

network infrastructure, routing control and applications, such as e-commerce and supply chain.

The Safe strategy combines Cisco's security products with those of vendor partners. For example, the Cisco products include the PIX Firewall, IOS Firewall Feature Set, Intrusion Detection System (IDS) and VPN Concentrators; third-party offerings include antivirus packages, host-based intrusion detection, log analysis and authentication systems.

Partners in the Safe initiative include RSA Security, Secure Computing, Entrust, Microsoft and VeriSign.

Web hosting service provider Exodus Communications plans to implement a security service based on the Safe model this month.

Cisco also rolled out several new products under the Safe umbrella. The Cisco Secure IDS 4210 intrusion-detection system is an appliance for corporate customers that detects unauthorized traffic traversing a network, such as hacking activity, by analyzing traffic in real time. When unauthorized traffic is detected, the

4210 can send alarms to a management console and deactivate sessions.

The 4210 is optimized for 45M bit/sec environments, such as multiple T-1/E-1 circuits, T-3 links and Ethernet LANs. The product costs \$8,000 and is available this quarter.

Another component of Safe is the IDS module Cisco introduced last week for the Catalyst 6000 switch ([www.nwfusion.com](http://www.nwfusion.com), DocFinder: 1032).

The Cisco Secure Policy Manager Version 2.2 is a policy-based security management system that lets users establish policies for controlling IDS devices, firewalls and VPN routers. Users can configure IDS devices and consolidate IDS event monitoring, alarming and status information with Policy Manager 2.2.

The software costs \$2,000 for a three-unit bundle, or \$15,000 for an enterprise license. It is available this quarter.

The Cisco Secure Access Control Server Version 2.5 is a Web-based package that lets administrators establish authentication parameters for users on a network. It

See **Cisco**, page 24

[www.nwfusion.com](http://www.nwfusion.com)

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# Quad boosts streaming media performance

BY JASON MESERVE

ATLANTA — As streaming media grows in popularity and usage, so does the demand on the delivery network and servers. For enterprise cus-

tomers and ISPs attempting to keep up with demand, regular PC-based servers running streaming media hardware may not be enough.

As bandwidth to server farms increases, the bottleneck be-

comes the server, not the pipe, says Mike Pagani, vice president of marketing for Quad. His company's solution is to use the equivalent of a fat pipe Internet connection all the way through its systems in the form of Fibre Channel. This way, the server can be eliminated as the performance bottleneck.

Quad last week demonstrated its new 1System and MovieServ systems, which use Fibre Channel connections to speed delivery and overall performance of video streams. The 19-inch, rack-mountable units use Fibre Channel to better match incoming line speeds in high-end data centers.

As bandwidth to server farms increases, the bottleneck be-

will have broadband access in 2004 as predicted by Cahners In-Stat group of Scottsdale, Ariz. Cahners reports streaming media is one of the primary reasons these households are moving to broadband.

All of Quad's units support up to two Pentium processors, multiple PCI slots that can contain servers and other communication hardware, and multiple disk drives for redundant storage. Fibre Channel connects each of the components to create a thick pipe for the data to flow back and forth within the system.

Pagani says without Fibre Channel, heavy-load streaming is "like draining a pipe with a bunch of straws."

Incoming requests are divided between the two processors using a simplified load-balancing scheme: whichever CPU responds fastest — meaning it's less busy — gets the request. Each CPU has its own set of hard drives from which to grab content. Embedded operating systems such as Windows 2000 or NT sit in memory for faster access time.

Pagani says the RAM is locked so the kernels cannot be tampered with. The box can also be connected to a LAN or WAN with standard or Gigabit Ethernet. Fibre Channel is still used within the unit.

Classic movie provider etv hollywood.com is one of Quad's beta testers. The company is using Quad's MovieServ devices to offer classic movies to Cable television providers. A Quad box containing three months of



programming can be dropped in a cable headend and served to customers using MPEG4 format, says Tony Barnard, president and CEO of etvhollywood.com. At the end of a three-month period, new hard drives are swapped containing another three months of programming.

"The server fits our future needs as well as what we need

today," Barnard says. "This thing can handle 3,000 streams and has an enormous storage capacity for such a small chassis."

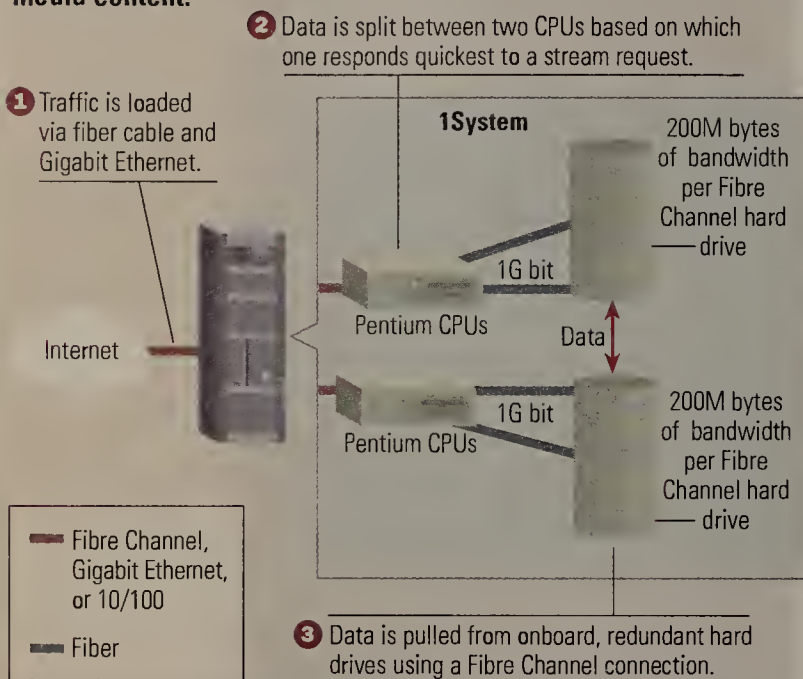
The low-end 1System model 1502 box starts at \$90,000 and includes 15 drives with 1.1 terabytes of storage and two built-in servers for streaming data.

The boxes, which are now going to market, are targeted at cable TV providers, application service providers, ISPs and large enterprise customers with heavy demands for streaming media.

Quad Research: [www.quadresearch.com](http://www.quadresearch.com)

## Speeding the delivery of streaming media

Quad Research's 1System technology uses Fibre Channel technology in a custom-built box to deliver streaming media content.



tomers and ISPs attempting to keep up with demand, regular PC-based servers running streaming media hardware may not be enough.

Enter Quad Research of Irvine, Calif.

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Quad is hoping to satisfy the 52.1 million households that

encyclopedia is also available this quarter.

Despite the sweeping nature of the Safe rollout, it is still a work in progress. Cisco is working with a few of its Safe partners to define a method to instrument applications with agents that will provide application-level information on potentially intrusive activity.

"We need a consistent message format from devices and applications for intrusion detection and security management and monitoring," says Richard Palmer, vice president and general manager of Cisco's VPN and security services business

unit. "The challenge is not so much the inspection but the volume of messages."

Palmer says Cisco's goal is to have this message format defined and published before year-end.

Cisco is also working with SAFE partners to map VPN-like encryption to wireless networks, Palmer says. ■

## Cisco, continued from page 21

runs on Windows 2000 and NT, and supports Remote Authentication Dial-In User Service and TACACS+ authentication routines for controlling user access to large-scale VPNs, dial-up and voice networks. It costs \$6,000 and is available this quarter.

The Cisco Security Encyclopedia is an online repository of security vulnerability information. It provides Cisco customers with access to network security problem resolution information. The

## Security

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## Datacenter, continued from page 21

Fibre Channel to HP's SureStore E Disk Array XP256 for shared storage. The NetServer design can scale up to eight Intel Pentium III Xeon processors and 32G bytes of memory. It features 64-bit PCI buses and management tools for system configuration and diagnostics. The servers also feature an optional 10/100Base-TX network interface card with support for optional redundant cards, failover and load balancing. A 32-way NetServer system running Win 2000 Datacenter will debut early next year.

Dell meanwhile is basing its systems for Win 2000 Datacenter Server on its PowerEdge 8450s and PowerVault storage systems. Charlie Neet, product manager in Dell's Enterprise Systems Group, says the company's Datacenter program will offer corporate users dedicated sales, service and support staffs. Users will get a single point of contact to help resolve any issues and can get a 99.9% uptime guarantee for certified systems through the program, which will be generally available in the fourth quarter of this year.

Dell's PowerEdge 8450s feature up to eight Intel Pentium III Xeon 700-MHz processors, 256M to 32G bytes of memory, 10 hot-plug PCI slots and a variety of network adapter options, including Intel Pro/100S Server Adapter (with IP Security encryption) and an Intel Pro/1000 Gigabit Server Adapter.

Neet says entry-level 8450s

can be purchased for less than \$30,000 but can range up to hundreds of thousands of dollars when users add storage, multiple processors, and service, support and consulting agreements.

Coincidentally, Dell cut the price of its PowerEdge servers some 50% last week. For example, the four-processor PowerEdge 6450 now costs \$18,000, down from \$31,400.

IBM is also offering a 99.9% uptime guarantee as part of its Datacenter program. IBM will base its program on its Netfinity 8500 server.

IBM will support users through its IBM Global Services division. IBM says it also plans to release 32-way Numa-Q 2000 servers running Win 2000 Datacenter Server in the future.

Compaq will team with Microsoft on the pair's joint Integration2000 initiative to promote an XML-centric, BizTalk Server 2000-based set of integration services and applications.

Compaq will also use its ProLiant eGeneration data center technology to support Microsoft's TerraServer as the database mutates into a programmable Web service. TerraServer uses a Microsoft SQL Server database to store aerial and satellite images of Earth and provide the information publicly on the 'Net.

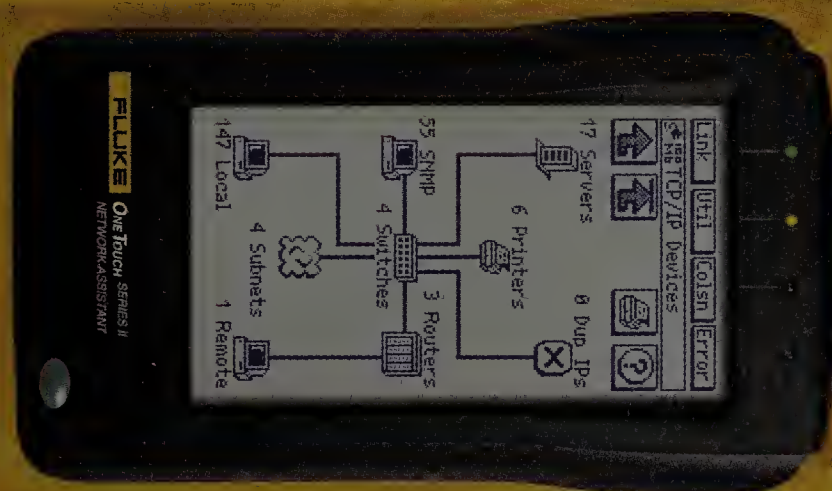
The U.S. Department of Agriculture said it will use this technology for natural resource and land management.

The IDG News Service contributed to this story.





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# 3Com targets IP telephony with new phone gear

BY PHIL HOCHMUTH

ATLANTA — 3Com last week announced new IP telephony gear that

could speed the delivery of IP-based Centrex services for small and midsize businesses.

3Com's session initiation protocol

(SIP) phones provide standard phone functions, such as speed dialing, hold and call transfer, and come with an infrared port that can receive data from

a Palm. Using PDA phone control software already installed in the phones, users can beam phone numbers to SIP phones from a Palm contact list that the phone can automatically dial. A PDA can also send information over the phone, such as an electronic business card, which could be read on an SIP phone's LCD screen by a recipient.

The phones can be used with 3Com's NBX LAN telephony product and connect to a network via a 10Base-T connection, or in a service provider system using the SIP Signaling Server. SIP is an application-layer signaling protocol for

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creating, modifying and terminating IP sessions with one or more participants. These sessions may include Internet multimedia conferences or Internet telephone calls. 3Com's plan is to create a fully featured IP telephony system.

"Until now, most corporate phone systems have been in the dark ages in terms of [IP features]," says Anand Varadachari, senior business development manager for 3Com's Internet communication division. "You had basic dialing, transfer and hold functions, and that's about it."

The company also rolled out the SIP signaling server, a Sun Solaris-based box

## IP phones to surge

The worldwide installed base for IP- and LAN-based phones is expected to jump from 132,600 this year to more than 1.6 million in 2003.

SOURCE: IDC, FRAMINGHAM, MASS.

running custom call control software from 3Com, as well as management software and a database for end-user billing data. The box sits in a service providers' central office and connects to customers' networks via

the Internet. Customers gain access to the public phone network through the server, which is hooked into the phone network by a gateway device. The server also comes with application programming interfaces, which can be used by service providers to develop custom unified messaging applications.

"The benefit of this [system] is that end users don't have to buy a whole new piece of phone equipment when their businesses get to a certain size," says Joe Gagan, senior analyst with The Yankee Group in Boston.

The 3Com SIP phone costs \$395. SIP signaling server pricing was unavailable. The two products were demonstrated at NetWorld+Interop 2000.

3Com: [www.3com.com/sip](http://www.3com.com/sip)





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Tolly on Technology . Kevin Tolly

## A DIGITAL UTILITY TWO DECADES IN THE MAKING

**N**ext week we embark on our "State of the LAN" seminar series throughout North America. This is a biannual tour, co-sponsored by The Tolly

Group and *Network World*, which looks at the strategies and technologies essential for building a world-class LAN/metropolitan-area network infrastructure.

The focus this time is "Implementing the New Best Practices." We'll hone in on specific steps you can take to assure that the network you build is as bullet-

proof as it is feature-rich.

It should be no surprise then that I chose "Building the digital utility" as the theme for my keynote address. My premise is, of course, the time is close at hand when we'll no longer need to build separate campus transport systems for computer, telephone and building/environmental management traffic.

Sure, it sounds something like a network crusader's Holy Grail. In reflecting on the changes I've witnessed in my first two decades in networking, I realized that we've already overcome the biggest obstacle: unifying communications for traditional "data" devices. Compared to accomplishing that, folding in telephony and video is almost easy.

When I landed in my first IBM mainframe environment in 1980, SNA was around, and shipping Binary Synchronous Communications ruled. BSC let terminals transmit and receive in buffers rather than the teletype style that had prevailed.

I once asked why we couldn't mix and match BSC terminals with BSC applications. I learned that BSC wasn't necessarily BSC. "Son, there are at least a dozen different flavors of BSC," I was told.

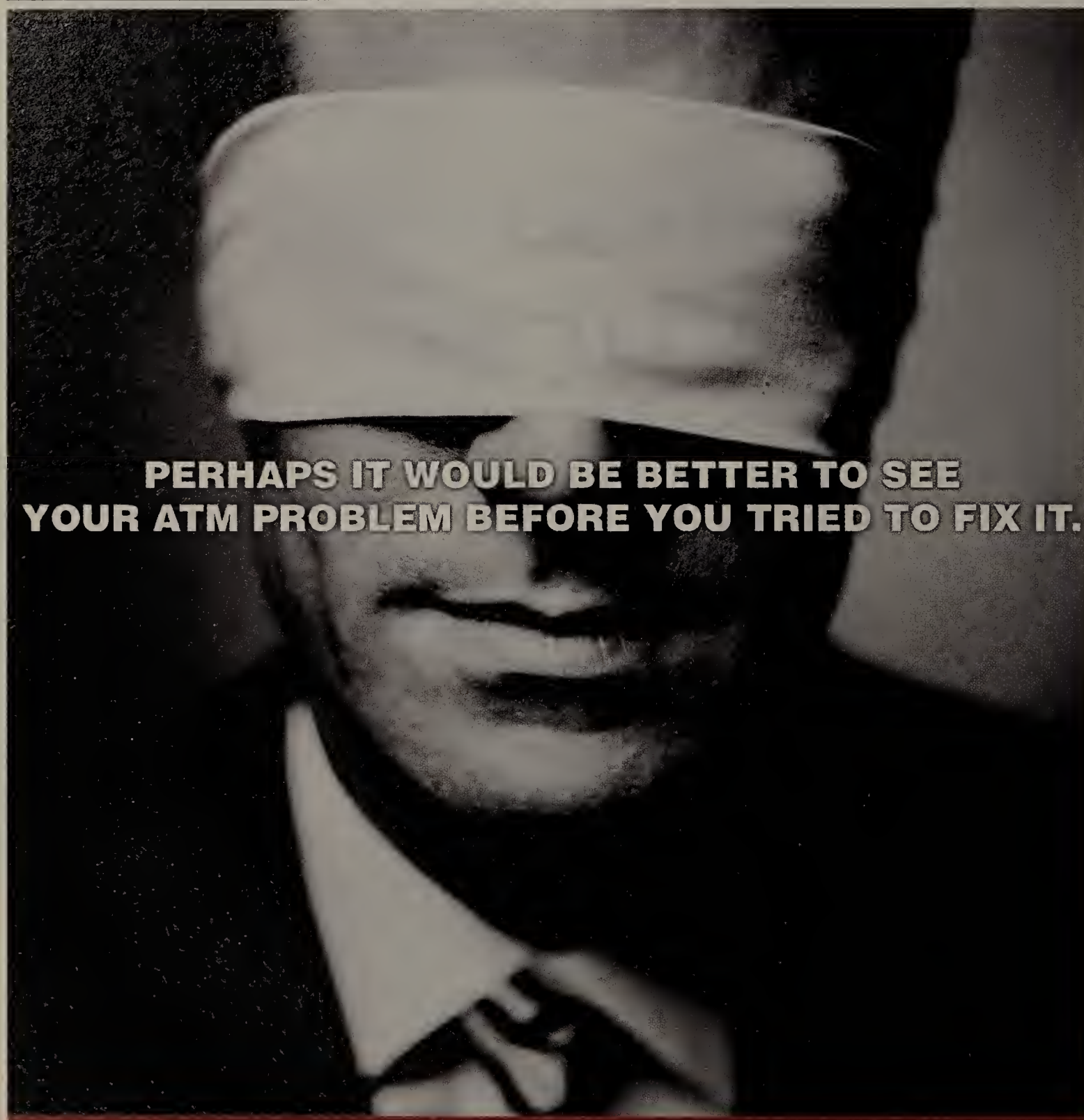
Worse, applications had to know the specific characteristics of the BSC terminal and send appropriate control commands. That meant upgrading to a new generation terminal required modifying and recompiling every online program. Be glad that you were in kindergarten then. SNA introduced the "protocol stack" concept to corporations and succeeded in decoupling applications from hardware-specific interfaces.

Even at the lowest levels, though, a pointless diversity ruled. Mainframe communication occurred over point-to-point wired, coaxial cable-connected 3270 models. But the System/3X minicomputer line had daisy chained terminals that used twinaxial connections. Not only were these incompatible from the wiring level, but also the command language these 5250 terminals used was unintelligible to 3270 devices.

With the introduction of LANs, the convergence toward a single data plug accelerated. Even token ring vs. Ethernet and SNA vs. IPX vs. NetBIOS vs. TCP, viewed against the backdrop of what preceded, was a quantum leap forward.

The culling process might still be going on had not the Internet come along to weigh in on the side of TCP/IP and Ethernet. Now that networkers worldwide can concentrate their efforts on using and developing those building blocks, the data networks will sweep like a wave over the campus, and the digital utility — after a 20-year gestation — will be born.

*Tolly is president of The Tolly Group, a strategic consulting and independent testing company in Manasquan, N.J. He can be reached at ktolly@tolly.com or www.tolly.com.*



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# Carriers & ISPs

The Internet, Extranets, Interexchange  
and Local Carriers, Wireless, Regulatory Affairs

## Briefs

France Telecom and Global One Communications, its wholly owned Reston, Va., subsidiary, last week announced plans for a 15,000-mile backbone network that will connect 28 major cities in the U.S. and Canada.

The network will be connected to France Telecom's pan-European backbone network, which was launched one year ago. France Telecom expects to have the network completed by the end of next year and said it will have up to 1.6 terabit/sec of capacity to support Internet, data, voice and multimedia traffic.

One of the main reasons France Telecom is investing \$200 million in a North American backbone network is that the IP traffic between the U.S. and Europe has grown, a company executive said.

Ericsson, Motorola and Nokia — the world's three largest suppliers of mobile phones — have jointly set up an organization dedicated to advance the development of location-based services over wireless networks.

The Location Interoperability Forum was founded to boost the global development of services and applications that let mobile phone users access services and information based on their geographic location.

While a number of such mobile positioning systems already have been launched throughout the world, they are lacking in interoperability, the companies starting up the forum said. The first applications based on the forum's recommendations are expected to be available in 2001.

Location Interoperability Forum: [www.locationforum.org](http://www.locationforum.org)

## AT&T advances ATM service offering

BY DENISE PAPPALARDO

AT&T is beefing up its ATM service with technology that will offer customers a more cost-effective way to support time-sensitive traffic.

The telecommunications giant is deploying Lucent's CBX 500 Multiservice WAN switches in its ATM network, which supports a relatively new ATM Forum specification called real-time variable bit rate (RT VBR).

The new technology will let users send voice and video traffic across their wide-area ATM networks at more economical rates than they could by using traditional constant bit rate (CBR) methods.

The primary difference is that RT VBR will let customers use shared ATM

bandwidth that's engineered to reduce delay instead of using CBR, which is essentially a dedicated circuit over a

service provider's network, says Mark Heaton, an analyst with TeleChoice, a consulting firm in Boston.

The specification eliminates the need for a carrier to dedicate bandwidth to every customer, which lowers costs for the service provider and users, Heaton says.

Multiple users can share the same ATM bandwidth using real-time VBR, which is not an option with CBR.

"More customers are asking for voice quality that doesn't have to go over the network as CBR traffic and has to be better than standard VBR," says Michael Kruswicki, ATM product manager at AT&T.

"The benefit is that we can slightly oversubscribe RT VBR because of the voice-compression algorithms in the See AT&T, page 34

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### GUESSING GAME

Can you name all the ATM service categories?  
And their benefits?

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## Carriers urged to trade bandwidth on exchanges

BY RICK PERERA

BARCELONA, SPAIN — A new world is emerging, in which bandwidth is traded as much as other commodities — wheat, corn and electricity, for example — according to a Stanford University professor speaking in Barcelona last week at the Carriers World Congress.

Professor Samuel Chiu, a member of Stanford's Department of Management Science and Engineering, said that as telecommunications markets are deregulated, carriers need to learn how to manage risk when planning the purchase and leasing of bandwidth capacity.

"If you're in a regulated world, there's not much risk. But if it's becoming a market, there's a risk of fluctuation," Chiu said.

Carriers are developing futures markets for bandwidth to lock in a price, he said, much as bakers have long relied on commodities markets to maintain stable prices for flour and sugar, for example.

Risk management is also useful, he continued, in a field where technology advances or changing pricing models can result in unexpected changes in demand. He cited the example of AOL,

which faced major capacity shortages after introducing fixed-price Internet access. By buying their capacity on a futures market, he said, carriers can avoid sudden price spikes in such a scenario.

communications Group, says the idea that bandwidth markets will develop the same way as those for electric power, for instance, is an analogy with limits. "The difference is that the infrastructure in electricity is

### Bidding for bandwidth

Both Arbinet-thexchange and Band-X offer online platforms for trading telephony bandwidth.

	Arbinet-thexchange	Band-X
<b>Trade includes:</b>	Buying, selling and delivery of voice, fax and IP minutes across the public switched telephone network, IP networks and wireless nets.	Buying and selling of clear channel capacity, dark fiber, wavelengths and ducts.
<b>Pricing:</b>	Flat rate with no binding contracts to buy or sell a specific volume of minutes.	No fees for posting or bidding. Fees paid only if transaction occurs through Band-X facilitation.

### Complicated market

Emerging exchanges such as Arbinet-thexchange and Band-X are taking the role that long-established institutions such as the Chicago Mercantile Exchange have filled for older commodities, Chiu said.

Sharon Crow, vice president for bandwidth trading of Williams Commu-

static — you've essentially been making wires the same way for 100 years," she says.

But bandwidth is a complicated market, Crow notes, with multiple types of fiber and cable, plus constant revolutions in technology.

Perera is a correspondent for IDG News Service in Berlin.





Eye on the carriers . David Rohde

## TAKING STOCK OF JUST-IN-TIME NET SERVICES

**C**arriers love to announce services and instantly declare them nationally available. But users know that expensive new switching

systems to support these services don't magically appear in dozens or hundreds of carrier points of presence at once.

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They also know many carriers use phony POPs — OK, "virtual POPs" — to make the access mileage from the customer premises appear reasonable, even though the carrier backhauls the traffic to the real switch hundreds of miles away. That extra mileage is often built into the price via inflated port or long-haul circuit fees rather than the access charge itself.

Let's look at a recent announcement from Intermedia to decode the meaning of national availability.

Intermedia is the first major carrier to introduce a new category of service called multilink frame relay (MFR). (I'm leaving aside a recent statement from PSINet, which is using the MFR standard but for an Internet access service.)

In MFR, users choose multiples of T-1 frame relay but don't have to subscribe to separate T-1 ports and segregate traffic among them. Instead, the carrier employs a recent Frame Relay Forum specification to lash the links together and segment each frame to transit the multiple links at once. This maximizes circuit utilization, and users can choose the amount of Nx T-1 bandwidth they need up to 12M bit/sec.

Users can avoid the expense and uncertainty of ordering a T-3 local access line and instead order enough local T-1s to match the aggregate frame relay port size.

Intermedia has 159 Lucent frame relay switches, but the new service

also requires a pizza-box-sized access concentrator specially designed for MFR by a company called Advanced Switching Communications (ASC). This box logically assigns any two or more of its 24 T-1 ports to one user's frame circuit.

Intermedia's MFR announcement boasts that it is "accepting customer orders anywhere in the continental U.S.," but officials say they're starting with ASC boxes in just five POPs. There's a certain logic to this because NxT-1 frame relay appeals mostly to data center sites where users may be balking at T-3 ATM. Still, Intermedia obviously hopes to get MFR orders from places far from the five initial POPs. And Mike Pryslak, senior director of advanced data services, concedes Intermedia is employing a "just-in-time" MFR service buildout.

Can Intermedia pull this off? That's where ASC comes in again. Its MFR box is stackable, and once a POP needs a lot of the boxes, Intermedia can pull them out and slide them vertically into an 18-slot chassis supporting 392 user ports. The goal is to give carriers maximum flexibility to deploy ports as needed without excessive upfront cost.

That's partly why Intermedia is able to offer a 3M bit/sec MFR connection costing only \$300 per month more than its regular \$1,200 T-1 frame relay price. So go ahead and place your orders from anywhere in the country, and see if just-in-time really pays off.

*Rohde is managing editor of The Edge section of Network World. He can be reached at [drohde@nww.com](mailto:drohde@nww.com).*

**AT&T,**  
continued from page 33

specification,"Kruswicki adds.

### Pricing a factor

While AT&T will be ahead of the technology curve as it rolls out support for the enhanced ATM specification, TeleChoice's Heaton notes that pricing will be key to customer adoption. Customers haven't been very receptive to usage-based pricing, so AT&T should be coming up with some kind of flat-rate fee, he says.

AT&T did not reveal pricing schemes or specific service availability dates.

AT&T's ATM network, which was predominately built with Cisco BPX ATM switches, is now being populated with Lucent's CBX 500 switches.

The service provider is using the new gear to not only support RT VBR, but also to support higher bandwidth services to customers.

AT&T is now supporting OC-12 ATM connections to business customers using the CBX 500 switches, which offer

more flexibility for high-bandwidth links, Kruswicki says. "The [user network interface] ports can support up to OC-48 connections in the network," he says.

■ **"More customers are asking for voice quality that doesn't have to go over the network as CBR traffic and has to be better than standard VBR."**

Michael Kruswicki, ATM product manager, AT&T

AT&T has one financial customer using the OC-12 services today, but the service isn't officially available until early next year.

AT&T: [www.att.com](http://www.att.com)





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# More users are finding DSL a bargain for VPNs

BY MICHAEL MARTIN

One drawback of DSL is that its static, always-on connection lacks security. Firewalls only protect access to an endstation, not transmissions over public networks. As a result, users have been turning to DSL VPNs for added peace of mind.

There are several ways companies and remote teleworkers can set up VPNs with DSL: with the same VPN software and hardware used for dial-up security; with native network-based VPNs offered by network services companies; or by setting up a private, point-to-point network, similar to a frame relay VPN.

Kathy Hackler, an analyst with San Jose consultancy Dataquest, says most companies using VPNs over DSL lines are doing so for teleworkers.

"I think you could go with just a firewall for security," she says, "but if your teleworkers are dealing with something like sensitive database information, you probably want a VPN."

Tony Aiuto, who heads the server team for Cambridge, Mass., start-up Popupnotes.com, is one such teleworker manipulating sensitive data over a DSL line. From his home in New York, Aiuto accesses a Popupnotes.com server in Cambridge so he can work on code for the company's service, which will let people make annotations on Web pages.

Aiuto says he isn't too concerned about the security of his DSL connection because he has a firewall. But he says he doesn't like sending clear text across any network, so he uses Open BSD's Open SSH Secure Shell, free open source software for Unix boxes, to encrypt any data traveling between his home and the Cambridge office. All Aiuto has to do is log onto the Cambridge office through Open BSD, and he has full run of the network.

"I'm happy with it," he says. "The performance is good. I know we're not sending anything in clear text, and it beats having to fly to Cambridge every week."

So far Aiuto hasn't had any reason to move to a hardware-based VPN. No one needs to access his site, and he doesn't need direct access to file servers, he says. However, this could change in the near future when Popupnotes.com launches. Popupnotes.com's servers will be housed at a collocation facility, and the company will set up a hardware-based VPN between its Cambridge office and the facility where the servers are housed. Aiuto would probably also be given a VPN box so he could access the collocation site remotely.

## VIRTUAL PRIVATE NETS Options expanding for companies and telecommuters.

School Administration Unit 29, which represents seven school districts in southwest New Hampshire, is one organization that's taken advantage of DSL to create a VPN between nine of its buildings.

To create the VPN, the administration unit required five circuits — three DSL lines and two T-1s (see graphic). The circuits run back into a cage owned by Vitts Networks, the provider of the VPN, at a Verizon central office. The VPN is separated from the Internet by a firewall. Each building also has a VPN box to encrypt any data sent over the network.

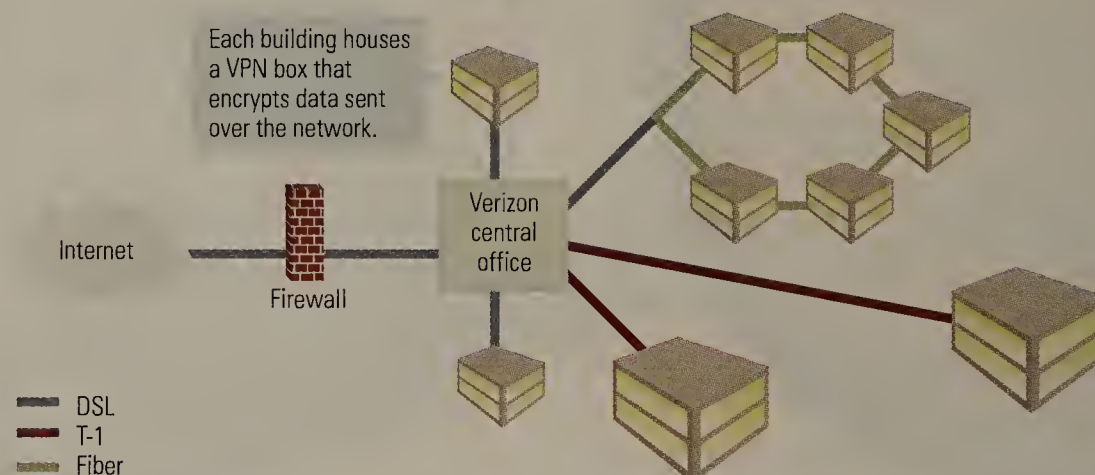
Dean Hollatz, the administration unit's director of technology, says the T-1s were necessary because one building needed a full 1.5M bit/sec of bandwidth that it couldn't get with DSL, and another building was 1,000 feet outside the three-mile DSL limit of the local central office.

The school district implemented the VPN, Hollatz says, so the buildings could swap sensitive information. The relatively low cost of DSL was what made the VPN possible, he says.

"We couldn't afford to drop a T-1 into our smaller schools, so when DSL and the price point came along it was something we could roll out to our smaller schools," he says.

### Taking DSL to school

New Hampshire's School Administration Unit 29 is using DSL, where practical, to connect buildings to a VPN. But more expensive T-1 links are being used to connect those buildings that need a full 1.5M bit/sec of bandwidth or are too far from the central office to get DSL.



While a software encryption tool is fine for what he's working on now, Aiuto believes a hardware-based VPN will offer better security.

"We feel some of the router-based stuff is probably less prone to being attacked," he says. "Someone could post a secure shell exploit tomorrow and make every system vulnerable."

The most secure DSL VPNs are truly private point-to-point connections, according to Eric Moyer, director of product marketing for Covad Communications. A point-to-point VPN is ideal for companies with remote offices, Moyer says.

To set up a corporate DSL VPN, a firm would need a DSL connection from each remote office pointing directly back to corporate headquarters and a connection at the corporate headquarters large enough to handle the traffic coming back to it — possibly a T-1 or T-3. Moyer says such a network is relatively cheap to set up when compared to frame relay VPNs.

"Because you're using DSL, you're using low-cost access mediums to get connected, and you can put together truly private networks for a fraction of what it would have cost you in the old days with frame relay or even dial-up through a remote access server," he says. A DSL connection from a remote office back into a corporate headquarters could cost as little as \$60 per month, according to Moyer.

In addition to software-based VPNs for remote workers and point-to-point VPNs, companies should soon be able to purchase network-based VPNs from service providers. These VPNs would be enabled by devices located within a service provider's network — such as Nortel Network's Shasta boxes, or gear from Cosine and Cisco.

Broadwing, which launched a VPN service for dedicated local loop and analog dial-up users in June, is working on extending the VPN offering to DSL.

Justine Lupul, Broadwing's director of IP services, says the provider should have a network-based VPN-over-DSL service available before year-end once it overcomes technology-related hurdles. Broadwing deploys its VPN service over circuits running frame signaling, and Lupul says most DSL vendors have not yet certified DSL for frame relay interoperability.

Once Broadwing's service is up and running, Lupul believes it will appeal to remote workers, but doesn't expect the service to replace any private line networks.

"With DSL as an upgrade to dial-up or ISDN, there's a high expectation you're going to be achieving good customer satisfaction," she says. "When DSL is being used as a replacement for private-line access, because it has to travel through a public frame relay cloud, there's not as high a chance of meeting or exceeding customer expectations." ■





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## Briefs

**Marconi** reached a deal to buy Mariposa Technology, a maker of ATM-based integrated access devices (IAD), for \$268 million. The deal will give Marconi IADs that sort customer traffic by priority and place it on a single link from customer sites to service-provider networks. Marconi and Mariposa together plan to develop an IAD that supports DSL. Marconi also plans to have its IADs, including its current IP-based devices, managed by its ForeThought software. Marconi was already reselling some Mariposa gear under an OEM agreement announced in May.

**RC Networks**, a vendor of in-building DSL gear, announced that service provider Edge Connections has chosen the vendor's RC8000 symmetric DSL (SDSL) access concentrators and RC2000 premise devices. Edge Connections of Atlanta plans to install DSL service for business customers in multitenant buildings in 24 markets. The RC8000 runs SDSL from common areas of buildings to tenants over regular telephone wires, supporting voice, video, frame relay and ATM as well as Internet access.

RC Networks: [www.rcnets.com](http://www.rcnets.com)

**Convergent Networks** announced that its ICS2000 broadband voice switch will be deployed by Chicago competitive local exchange carrier Focal Communications. Convergent says Focal chose the ICS2000 broadband switch to cap its investment in traditional local telephony circuit switches and to accommodate growth in dial-up modem traffic. The ATM-based ICS2000 is designed for interworking between circuit and packet networks, and is expected to let Focal offer voice over DSL.

Convergent: [www.convergentnet.com](http://www.convergentnet.com)

## Brix supplies tools to verify SLAs

BY TIM GREENE

**BILLERICA, MASS.** — If Brix Networks lives up to its claims, it will only get easier to squeeze decent service-level agreements out of your application service, ISP or VPN provider.

Brix promises to deliver hardware and software that closely monitor traffic on public IP networks up to the application layer, meaning service providers can tell how each traffic type is doing.

The 13-month-old start-up, which will have its first products available this month, has announced two pieces of hardware — the Brix 100 for customer sites and the Brix 1000 for service provider points of presence (POP).

With the devices in place, service providers can determine latency, jitter and other SLA parameters between customer sites and carrier POPs as well as from POP to POP. BrixWorx management software that runs on Sun workstations and Oracle databases crunches the data gathered by the Brix boxes to write reports and audit compliance with SLAs.

Service providers punch in a description of the service and SLA that each customer is supposed to receive, and that description is stored in a universal registry supported by an Oracle database.

Service providers that use Brix's gear get just the data relevant to SLAs, as opposed to data they might get from monitoring data collected by a router, says Dennis Drogseth, an analyst with Enterprise Management Consultants in Portsmouth, N.H. "The reports have direct relevance to business-defined SLAs. No slide rules. No need to look it up in a book or contract," he says.

Plus the appliances and BrixWorx deliver good results even if installed in networks like the Internet made up of gear built by many vendors, Drogseth says.

Corporate customers would enjoy better and more prompt SLA verification under Brix's system, says Deb Mielke, an analyst with Treillage Consulting in Dallas. "They actually might be able to tell what's going on end-to-end in an IP world. Also, they can view their net and get their contractual obligations on the bill, not credited by hand," she says.

The Brix 100 can be placed between the service provider's router and the customer's firewall in cases in which the customer is buying only network services.

If the customer wants a managed firewall service, the Brix box can be moved behind the firewall so the service provider can monitor the performance customers are receiving. In this case, data

### PROFILE: BRIX NETWORKS

**Location:** Billerica, Mass.

**Founded:** July 1999

**Products:** Network-monitoring gear for service providers to assure service-level agreements.

**Funding:** \$25 million

**Investors:** Charles River Ventures and ComVentures.

**Employees:** 70+

**Competitors:** Computer Associates, Agilent and Visual Networks.

**Fun fact:** CFO Maura McInerney engineered Bay Networks' acquisition of New Oak, the previous start-up founded by Brix CEO Tom Pincince.

gathered from behind the firewall is sent via encrypted HTTP so it can cross the firewall.

Carriers that want to verify SLAs but don't want to buy the gear and train staff to use it, can buy a verification service. See **Brix**, page 42

## Lucent pairs carrier management with enterprise portal

*Service-provider version of VitalSuite incorporates Web-based performance reports for users.*

BY DAVID ROHDE

**SUNNYVALE, CALIF.** — Is your service provider having trouble giving you Web-based performance management reports that cover the statistics you need?

Lucent is telling those service providers to buy, not build, their customer Web interfaces — and to buy those interfaces as part of the management system they use to monitor their own network.

That's much of the idea behind VitalSuite SP, a major release of service-provider management tools from the software division of Lucent's NetworkCare Professional Services unit.

VitalSuite SP is an IP-centric, carrier-class version of Lucent's VitalSuite, a group of tools the company has deployed in corporate networks. The SP version features a tiered architecture based on an

XML-driven distributed database that Lucent claims scales to millions of users and resources in complex service-provider networks.

At the bottom layer is a software agent called VitalSuite, which is loaded onto

potentially hundreds of thousands of desktops, and multiple collection servers, which distribute the data gathering load.

At the middle layer, aggregation servers receive performance data from the collection servers via SQL queries. At the top level, a master server provides a portal for Web-accessible administration and reporting functions.

VitalSuite SP's modules — for management and service-level agreement (SLA) reporting on network infrastructure, applications and value-added services — pull together technologies from several Lucent acquisitions.

For example, International Network Services (INS), which Lucent bought last year, came out with EnterprisePro 3.0 in 1996. Now known as the VitalNet module of VitalSuite, that system monitors and See **Lucent**, page 42

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Thousands			Units			Millions			Thousands
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100,000	10,000	1,000	100	10	1	100,000,000	10,000,000	1,000,000	100,000

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# Sycamore box shoots for long reach, high capacity

BY TIM GREENE

CHELMSFORD, MASS. — Long-haul carrier networks that rely as much as possible on pure optical networks will get a boost from Sycamore Networks' latest piece of equipment, the SN 10000 optical switch.

The new box supports many optical interfaces and amplification options that let carriers support fiber spans ranging up to 4,000 kilometers without relying on expensive electrical signal regenerators.

The flexibility of the SN 10000 makes it possible for service providers to buy only the capacity required for the distance that needs to be covered, saving on initial capital outlay. The boxes are modular enough to add capacity later if that becomes necessary, says Christopher Nicoll, an analyst with Current Analysis in Sterling, Va.

The switch features high capacity and long reach, but supports one at the expense of the other. So at the high-capacity

end, a carrier could support up to 160 wavelengths on a single fiber via dense wave division multiplexing — a staggering 1.6 terabit/sec capacity using lasers that transmit at OC-192 speeds. But that would be over a span of only 800 kilometers if only optical amplification were used.

Alternatively, at the long-distance end, the SN 10000 supports spans of up to 4,000 kilometers, employing purely optical amplification techniques. But to accomplish that, the capacity has to back off to just 40 wavelengths per fiber, or a total of 400G bit/sec.

Service providers can pick options that allow capacity and distance parameters that fall between the two extremes.

This is an advantage over less flexible equipment made by Nortel Networks and Ciena, according to Maribel Dolinov, an analyst with Forrester Research in Cambridge, Mass. The SN 10000 is also smaller than the largest network-backbone switches, she says. "This is an in-

## Sycamore's ultra long-haul gear

Sycamore's SN 10000 optical switches enable carriers to send traffic over fibers that are up to eight times longer than those supported by traditional optical network technology.

1 A fiber can support up to 160 wavelengths at a distance of up to 500 kilometers using traditional optical amplifiers.



2 A fiber can support those same 160 wavelengths at a distance of up to 800 kilometers using Sycamore's new RAMAN amplifiers.



3 By reducing the number of wavelengths on the fiber to 40 and using Raman amplifiers, the SN 10000 can support 4,000-kilometer fiber spans:



between size, and there are not a lot of in-between boxes. If you needed one this size from another vendor, you would have to strip down one of their core

products," she says.

Sycamore uses a technique called Raman amplification, which strengthens optical signals by blasting bursts of proper wavelength light down the fiber in the opposite direction. Service providers can employ one, both or neither depending on the fiber span being connected and how much traffic it has to support.

Sycamore says Scandinavian carrier Utfors, which is constructing an end-to-end optical Ethernet network for delivering IP services, plans to use the ultra long-haul capabilities of the SN 10000 to complete a fiber link across the Baltic Sea between Sweden and Finland. Using Raman amplifiers, the company will be able to island-

hop across the sea without needing expensive underwater equipment that requires constant maintenance, according to Peter Hunt, a product manager at Sycamore.

Sycamore says it uses commodity optical components that are readily available, but its promise is to provide superior management and provisioning support via its Silvix Optical Network Management System. Sycamore also makes optical gear for all parts of service provider networks from edge to core. It bought Sirocco Systems for \$2.9 billion earlier for Sirocco's optical access switches to aggregate traffic on metropolitan networks.

Sycamore: [www.sycamore.net](http://www.sycamore.net)

Lucent,  
continued from page 39

reports on network infrastructure performance. INS had also bought VitalSigns, which originated the VitalAgent desktop agent on which Lucent has drawn its naming conventions.

Perhaps the key to the new

package is that all collected customer data is rolled up to a new VitalSuite SP Command Center interface, which lets service providers organize the information by customer domain, service technology or geographic area. Lucent then provides a Web interface for the carriers' business customers called "My

Vital," letting those customers establish a personal portal into the carrier's system to access performance reports (see graphic).

VitalSuite SP has been deployed at the Denver ISP, hosting and managed-services provider FirstWorld Communications. The system lets FirstWorld simultaneously show customers what kind of network resources they're using every month and lets FirstWorld manage its bandwidth cost-effectively, says Terry Burnside, FirstWorld's senior vice president of IT.

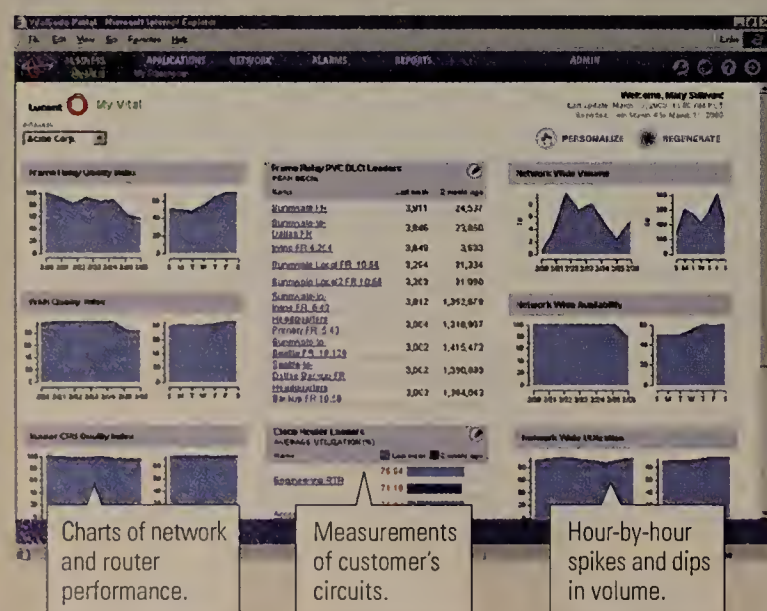
VitalSuite SP also includes what Lucent calls its OpenGateway feature, which forwards VitalSuite-generated traps to other SNMP-enabled consoles such as Tivoli's NetView, Hewlett-Packard's OpenView and Aprisma's Spectrum. Real-time events detected by VitalSuite SP can also be forwarded to leading trouble-ticketing systems such as Remedy ARS.

VitalSuite SP starts at \$53,000 for service providers, although the price could be higher depending on implementation.

Lucent: [www.lucent-networkcare.com/software/](http://www.lucent-networkcare.com/software/)

## Ready-made performance charting

Lucent's network-management suite for service providers includes a Web interface that service providers can offer to their enterprise customers:



Brix,  
continued from page 39

from Brix. In that case, Brix deploys the boxes, monitors the network and writes reports for the service provider. Brix says as a third-party auditor of service performance, it could be attractive to end users because SLA audits will not be generated by the service provider being audited.

Brix equipment can also accurately determine one-way latency using timing synchronized by global positioning satellites (GPS).

This feature is important for verifying services that include Multi-protocol Label Switching or load balancing, which may involve packets taking different routes in different directions between the same two sites.

To support GPS, Brix 1000 boxes feature coaxial cable ports to connect to GPS gear.

The BrixWorx software has XML interfaces that can be used to connect to accounting, provisioning and event correlation tools that service providers use to deliver services.

Brix: [www.brixnet.com](http://www.brixnet.com)



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### • Worldwide Telco-Grade Locations

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Indianapolis, IN  
Irvine, CA  
Jacksonville, FL  
Kansas City, MO  
Las Vegas, NV  
Los Angeles, CA  
Louisville, KY  
Memphis, TN  
Miami, FL  
Milan, Italy  
Minneapolis, MN  
Montreal, Canada  
Nashville, TN  
New Orleans, LA  
New York, NY (2 locations)  
Newark, NJ  
Oklahoma City, OK  
Philadelphia, PA  
Phoenix, AZ  
Pittsburgh, PA  
Portland, OR  
Reston, VA  
Sacramento, CA  
Salt Lake City, UT  
San Diego, CA  
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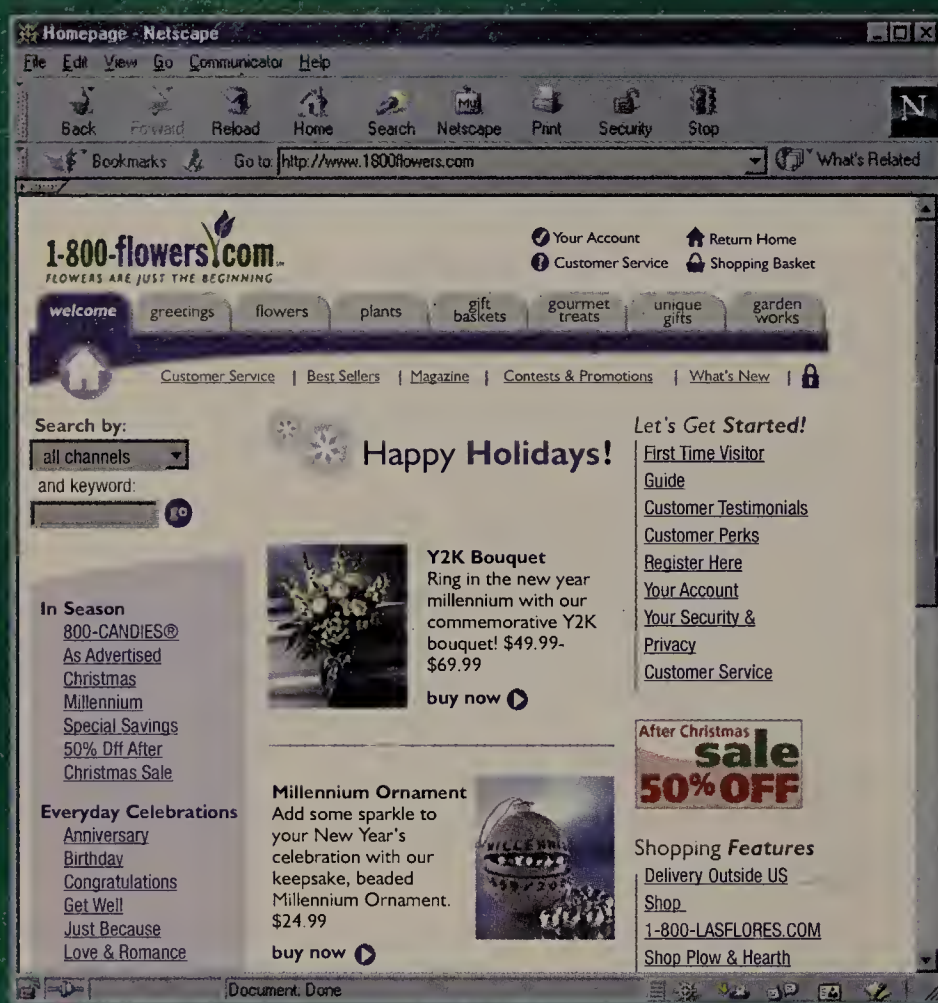
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B1000

## 1. What is the principal business activity at your location? (check ONE only)

- |  |  |  |
|--|--|--|
| 01. <input type="checkbox"/> Manufacturing (other)   | 10. <input type="checkbox"/> Education   | 18. <input type="checkbox"/> Other (please specify) _____  |
| 02. <input type="checkbox"/> Finance/Banking   | 11. <input type="checkbox"/> Government/Military/Aerospace   |  |
| 03. <input type="checkbox"/> Insurance/Real Estate/Legal   | 12. <input type="checkbox"/> Consulting (Independent) *  |  |
| 04. <input type="checkbox"/> Health Care Services  | 13. <input type="checkbox"/> Communications Carriers   | *Attn Consultants, Integrators, Distributors, Resellers: Please complete form based on ALL clients and your own business needs |
| 05. <input type="checkbox"/> Hospitality/Entertainment/Recreation  | 14. <input type="checkbox"/> ISP   |  |
| 06. <input type="checkbox"/> Media/TV/Cable/Radio/Print  | 15. <input type="checkbox"/> ASP   |  |
| 07. <input type="checkbox"/> Retail/Wholesale Trade/Business Services  | 16. <input type="checkbox"/> Manufacturing (Computer/Communications/OEM)                               |  |
| 08. <input type="checkbox"/> Transportation  | 17. <input type="checkbox"/> Resellers/VARS/VADs/Integrators/Distributors* (Computers/Communications)* |  |
| 09. <input type="checkbox"/> Utilities/Process Industries/Mining, Construction, Petroleum, Refining, Agriculture, Forestry |  |  |

## 2. P: What is your primary job function? (check ONE only) S: What is your secondary job function? (check ALL that apply)

- |  |  |   |          |   |          |
|--|--|---|----------|---|----------|
| <b>P</b>   | <b>S</b>   | <b>P</b>  | <b>S</b> | <b>P</b>  | <b>S</b> |
| <input type="checkbox"/> 1. <input type="checkbox"/> Network Management                  | <input type="checkbox"/> S. <input type="checkbox"/> Internet/Intranet/E-Commerce Management                     | <input type="checkbox"/> 8. <input type="checkbox"/> Consultant (Independent) |          | <input type="checkbox"/> 9. <input type="checkbox"/> Other (please specify) _____ |          |
| <input type="checkbox"/> 2. <input type="checkbox"/> LAN Management                      | <input type="checkbox"/> 6. <input type="checkbox"/> Engineering Management                                      |   |          |   |          |
| <input type="checkbox"/> 3. <input type="checkbox"/> Datacom/Telecom Management          | <input type="checkbox"/> 7. <input type="checkbox"/> Corporate Management (CEO, COO, CFO, Pres., VP, Dir., Mgr.) |   |          |   |          |
| <input type="checkbox"/> 4. <input type="checkbox"/> CIO/CTO/IS/T/MIS/Systems Management |  |   |          |   |          |

## 3. What is the estimated value of Network equipment and services that you specify, recommend, or approve the purchase of? (Please print the appropriate number code on the line next to each product category. Please complete ALL categories A-D.)

- |                                   |  |   |
|-----------------------------------|--|---|
| 1. \$100 Million or more          | A _____ Large Systems (Mainframes/Minis)       | H _____ Internetworking (including Routers, Switches) |
| 2. \$50 Million to \$99.9 Million |  |   |
| 3. \$25 Million to \$49.9 Million | B _____ Desktops (Micros/Laptops/Workstations) | I _____ Internet/Web/E-commerce                       |
| 4. \$10 Million to \$24.9 Million |  | J _____ Intranet/Extranet                             |
| 5. \$1 Million to \$9.9 Million   | C _____ Mobile (including PDAs, Wireless)      | K _____ Remote Access                                 |
| 6. \$100,000 to \$999,999         | D _____ Servers                                | L _____ Peripherals                                   |
| 7. \$50,000 to \$99,999           | E _____ LANs                                   | M _____ Software                                      |
| 8. Under \$50,000                 | F _____ WAN Equipment                          | N _____ Services/Support                              |
| 9. None of the above              | G _____ Carrier Services                       | O _____ Storage                                       |

## 4. What is the total number of sites for which you have purchase influence? (check ONE only)

1. ☐ 100+    2. ☐ 50 to 99    3. ☐ 20 to 49    4. ☐ 10 to 19    5. ☐ 2 to 9    6. ☐ 1    7. ☐ None

## 5. What is the total number of Servers/Clients/LANs installed/planned at your location/in your entire organization? (check ONE box in each column)

SERVERS		CLIENTS		LANs	
At Location	Entire Org.	At Location	Entire Org.	At Location	Entire Org.
A	B	C	D	E	F
<input type="checkbox"/> 1. 50,000+	<input type="checkbox"/>	<input type="checkbox"/> 1. 50,000+	<input type="checkbox"/>	<input type="checkbox"/> 1. 50,000+	<input type="checkbox"/>
<input type="checkbox"/> 2. 10,000 to 49,999	<input type="checkbox"/>	<input type="checkbox"/> 2. 10,000 to 49,999	<input type="checkbox"/>	<input type="checkbox"/> 2. 10,000 to 49,999	<input type="checkbox"/>
<input type="checkbox"/> 3. 1,000 to 9,999	<input type="checkbox"/>	<input type="checkbox"/> 3. 1,000 to 9,999	<input type="checkbox"/>	<input type="checkbox"/> 3. 1,000 to 9,999	<input type="checkbox"/>
<input type="checkbox"/> 4. 100 to 999	<input type="checkbox"/>	<input type="checkbox"/> 4. 100 to 999	<input type="checkbox"/>	<input type="checkbox"/> 4. 100 to 999	<input type="checkbox"/>
<input type="checkbox"/> 5. 50 to 99	<input type="checkbox"/>	<input type="checkbox"/> 5. 50 to 99	<input type="checkbox"/>	<input type="checkbox"/> 5. 50 to 99	<input type="checkbox"/>
<input type="checkbox"/> 6. 10 to 49	<input type="checkbox"/>	<input type="checkbox"/> 6. 10 to 49	<input type="checkbox"/>	<input type="checkbox"/> 6. 10 to 49	<input type="checkbox"/>
<input type="checkbox"/> 7. 1 to 9	<input type="checkbox"/>	<input type="checkbox"/> 7. 1 to 9	<input type="checkbox"/>	<input type="checkbox"/> 7. 1 to 9	<input type="checkbox"/>
<input type="checkbox"/> 8. none	<input type="checkbox"/>	<input type="checkbox"/> 8. none	<input type="checkbox"/>	<input type="checkbox"/> 8. none	<input type="checkbox"/>

## 6. What is your scope and involvement in purchasing decisions for network products and services for your enterprise?

A. Scope (check ONE only)

- CORPORATE:  
☐ 1. Entire Enterprise/Multiple Enterprises  
☐ 2. Division/Multiple Divisions  
☐ 3. Department  
☐ 4. None

B. Involvement (check ALL that apply)

- ☐ 1. Create Network/IT Strategy  
☐ 2. Recommend/Specify Brand  
☐ 3. Approve Purchase  
☐ 4. Evaluate Products/Services  
☐ 5. Determine the Need  
☐ 6. None

## 7. What is the estimated number of employees at your location/in entire organization? (check ONE in each section)

A. At your location:

- ☐ 1. Over 20,000    ☐ 6. 500 - 999  
☐ 2. 10,000 - 19,999    ☐ 7. 250 - 499  
☐ 3. 5,000 - 9,999    ☐ 8. 100 - 249  
☐ 4. 2,500 - 4,999    ☐ 9. 99 or less  
☐ 5. 1,000 - 2,499

B. Entire organization:

- ☐ 1. Over 20,000    ☐ 5. 1,000 - 2,499  
☐ 2. 10,000 - 19,999    ☐ 6. 500 - 999  
☐ 3. 5,000 - 9,999    ☐ 7. 499 or less  
☐ 4. 2,500 - 4,999

## 8. Please indicate the Internet/Intranet/WAN/LAN/Remote products/services that you are currently involved in purchasing or plan to purchase (check ALL that apply)

A. Currently involved in purchasing

B. Plan to purchase

### INTERNET/INTRANET

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> A. <input type="checkbox"/> B. 01. <input type="checkbox"/> VPN Equipment | <input type="checkbox"/> A. <input type="checkbox"/> B. 07. <input type="checkbox"/> Web Hosting | <input type="checkbox"/> A. <input type="checkbox"/> B. 13. <input type="checkbox"/> Web Based Collaboration/Groupware |
| <input type="checkbox"/> 02. <input type="checkbox"/> VPN Services                                 | <input type="checkbox"/> 08. <input type="checkbox"/> Content Hosting                            | <input type="checkbox"/> 14. <input type="checkbox"/> Web Acceleration/Caching/Load Balancing Products                 |
| <input type="checkbox"/> 03. <input type="checkbox"/> Firewalls/Security/Encryption                | <input type="checkbox"/> 09. <input type="checkbox"/> Traffic Management                         | <input type="checkbox"/> 15. <input type="checkbox"/> Other Internet/Intranet  |
| <input type="checkbox"/> 04. <input type="checkbox"/> Electronic Commerce Tools                    | <input type="checkbox"/> 10. <input type="checkbox"/> Web Development Tools                      |  |
| <input type="checkbox"/> 05. <input type="checkbox"/> Web Servers/Software                         | <input type="checkbox"/> 11. <input type="checkbox"/> Management/Monitoring Software             |  |
| <input type="checkbox"/> 06. <input type="checkbox"/> Internet Services                            | <input type="checkbox"/> 12. <input type="checkbox"/> Web Based Management Tools                 |  |

### LANs/INTERNETWORKING

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> A. <input type="checkbox"/> B. 16. <input type="checkbox"/> Local-Area Networks | <input type="checkbox"/> A. <input type="checkbox"/> B. 26. <input type="checkbox"/> Layer 4-7 Switches | <input type="checkbox"/> A. <input type="checkbox"/> B. 34. <input type="checkbox"/> Hubs/Intelligent Hubs/Stackable Hubs |
| <input type="checkbox"/> 17. <input type="checkbox"/> Network Operating System Software (NOS)            | <input type="checkbox"/> 27. <input type="checkbox"/> ATM Switches                                      | <input type="checkbox"/> 35. <input type="checkbox"/> Cables/Connectors, Baluns   |
| <input type="checkbox"/> 18. <input type="checkbox"/> Intel Based Servers                                | <input type="checkbox"/> 28. <input type="checkbox"/> Token-Ring Switches                               | <input type="checkbox"/> 36. <input type="checkbox"/> Management Frameworks   |
| <input type="checkbox"/> 19. <input type="checkbox"/> Intel Based Multiprocessor Servers                 | <input type="checkbox"/> 29. <input type="checkbox"/> Network Storage (NAS, SANs)                       | <input type="checkbox"/> 37. <input type="checkbox"/> Call Center Tools   |
| <input type="checkbox"/> 20. <input type="checkbox"/> RISC Based Servers                                 | <input type="checkbox"/> 30. <input type="checkbox"/> Storage/Backup (Optical, Disk, Tape, RAID)        | <input type="checkbox"/> 38. <input type="checkbox"/> Voice over LAN  |
| <input type="checkbox"/> 21. <input type="checkbox"/> Clustered Servers                                  | <input type="checkbox"/> 31. <input type="checkbox"/> Network Test/Diagnostic Tools                     | <input type="checkbox"/> 39. <input type="checkbox"/> Other Local-Area Network/Internetworking                            |
| <input type="checkbox"/> 22. <input type="checkbox"/> Print Servers                                      | <input type="checkbox"/> 32. <input type="checkbox"/> UPS   |   |
| <input type="checkbox"/> 23. <input type="checkbox"/> Routers  | <input type="checkbox"/> 33. <input type="checkbox"/> Network Interface Cards (NICs, PCMCIA)            |   |
| <input type="checkbox"/> 24. <input type="checkbox"/> Layer 2 Switches                                   |   |   |
| <input type="checkbox"/> 25. <input type="checkbox"/> Layer 3 Switches                                   |   |   |

### REMOTE/WIRELESS

- |   |   |  |
|---|---|--|
| <input type="checkbox"/> A. <input type="checkbox"/> B. 40. <input type="checkbox"/> PDAs | <input type="checkbox"/> A. <input type="checkbox"/> B. 42. <input type="checkbox"/> Remote Access Services | <input type="checkbox"/> A. <input type="checkbox"/> B. 44. <input type="checkbox"/> Other Remote/Wireless |
| <input type="checkbox"/> 41. <input type="checkbox"/> Remote Access Products              | <input type="checkbox"/> 43. <input type="checkbox"/> Wireless Data Equipment/Services                      |  |

### WAN EQUIPMENT & SERVICES

- |   |  |  |
|---|--|--|
| <input type="checkbox"/> A. <input type="checkbox"/> B. 45. <input type="checkbox"/> Modems | <input type="checkbox"/> A. <input type="checkbox"/> B. 51. <input type="checkbox"/> FT-1/T-1/T-3 Services | <input type="checkbox"/> A. <input type="checkbox"/> B. 58. <input type="checkbox"/> Managed LAN/Router Services |
| <input type="checkbox"/> 46. <input type="checkbox"/> Cable Modems                          | <input type="checkbox"/> 52. <input type="checkbox"/> xDSL Services/Products                               | <input type="checkbox"/> 59. <input type="checkbox"/> Fax Servers/Services                                       |
| <input type="checkbox"/> 47. <input type="checkbox"/> Asynchronous Transfer Mode (ATM)      | <input type="checkbox"/> 53. <input type="checkbox"/> Diagnostic/Test Equipment                            | <input type="checkbox"/> 60. <input type="checkbox"/> Other WAN Equipment/Services                               |
| <input type="checkbox"/> 48. <input type="checkbox"/> Frame Relay Equipment including FRADS | <input type="checkbox"/> 54. <input type="checkbox"/> DSU/CSU  |  |
| <input type="checkbox"/> 49. <input type="checkbox"/> Frame Relay Services                  | <input type="checkbox"/> 55. <input type="checkbox"/> PBXs   | None of the above (1 - 60) <input type="checkbox"/> A. <input type="checkbox"/> B. 61. <input type="checkbox"/>  |
| <input type="checkbox"/> 50. <input type="checkbox"/> ISDN Equipment/Services               | <input type="checkbox"/> 56. <input type="checkbox"/> Voice/Video over IP Gateways                         |  |
|   | <input type="checkbox"/> 57. <input type="checkbox"/> Videoconferencing                                    |  |

## 9. Please indicate the Network hardware/software/services that you are currently involved in purchasing or plan to purchase: (check ALL that apply)

A. Currently involved in purchasing

B. Plan to purchase

### SYSTEMS/PERIPHERALS

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> A. <input type="checkbox"/> B. 01. <input type="checkbox"/> Laptops/Notebooks | <input type="checkbox"/> A. <input type="checkbox"/> B. 05. <input type="checkbox"/> Storage/Backup (Optical, Disk, Tape, RAID) | <input type="checkbox"/> A. <input type="checkbox"/> B. 08. <input type="checkbox"/> Minis |
| <input type="checkbox"/> 02. <input type="checkbox"/> PCs  | <input type="checkbox"/> 06. <input type="checkbox"/> Printers  | <input type="checkbox"/> 09. <input type="checkbox"/> Mainframes                           |
| <input type="checkbox"/> 03. <input type="checkbox"/> Windows Terminals/Thin Clients                   | <input type="checkbox"/> 07. <input type="checkbox"/> Printer/Fax/Copier Hybrids (Multifunction Printers)                       | <input type="checkbox"/> 10. <input type="checkbox"/> Fax/Modem Boards                     |
| <input type="checkbox"/> 04. <input type="checkbox"/> Workstations                                     |   | <input type="checkbox"/> 11. <input type="checkbox"/> Memory/Chips/Boards/Cards            |
|  |   | <input type="checkbox"/> 12. <input type="checkbox"/> Other Computers/Peripherals          |

### SOFTWARE/APPLICATIONS

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> A. <input type="checkbox"/> B. 13. <input type="checkbox"/> Network Management (incl. SNMP) | <input type="checkbox"/> A. <input type="checkbox"/> B. 20. <input type="checkbox"/> Groupware | <input type="checkbox"/> A. <input type="checkbox"/> B. 27. <input type="checkbox"/> Document Management |
| <input type="checkbox"/> 14. <input type="checkbox"/> Systems Management   | <input type="checkbox"/> 21. <input type="checkbox"/> E-Mail                                   | <input type="checkbox"/> 28. <input type="checkbox"/> Site Metering Tools                                |
| <input type="checkbox"/> 15. <input type="checkbox"/> Security   | <input type="checkbox"/> 22. <input type="checkbox"/> Enterprise Resource Planning (ERP)       | <input type="checkbox"/> 29. <input type="checkbox"/> Data Warehousing                                   |
| <input type="checkbox"/> 16. <input type="checkbox"/> Directory Services   | <input type="checkbox"/> 23. <input type="checkbox"/> EDI                                      | <input type="checkbox"/> 30. <input type="checkbox"/> Anti Virus Software                                |
| <input type="checkbox"/> 17. <input type="checkbox"/> Operating Systems  | <input type="checkbox"/> 24. <input type="checkbox"/> Desktop Videoconferencing                | <input type="checkbox"/> 31. <input type="checkbox"/> Multimedia   |
| <input type="checkbox"/> 18. <input type="checkbox"/> Applications Development Tools                                 | <input type="checkbox"/> 25. <input type="checkbox"/> Imaging                                  | <input type="checkbox"/> 32. <input type="checkbox"/> Helpdesk   |
| <input type="checkbox"/> 19. <input type="checkbox"/> Database Management/RDBMS                                      | <input type="checkbox"/> 26. <input type="checkbox"/> Middleware/Serverware                    | <input type="checkbox"/> 33. <input type="checkbox"/> Other Software/Applications                        |

### SERVICES

- |   |   |  |
|---|---|--|
| <input type="checkbox"/> A. <input type="checkbox"/> B. 34. <input type="checkbox"/> BPO (Business Process Outsourcing incl. Financial Services, HR, Logistics, etc.) | <input type="checkbox"/> A. <input type="checkbox"/> B. 35. <input type="checkbox"/> ASP Services | <input type="checkbox"/> A. <input type="checkbox"/> B. 38. <input type="checkbox"/> Education/Training Services |
|   | <input type="checkbox"/> 36. <input type="checkbox"/> Call Center Outsourcing                     | <input type="checkbox"/> 39. <input type="checkbox"/> Other Services   |
|   | <input type="checkbox"/> 37. <input type="checkbox"/> Systems Integration/Consulting              | None of the above (1 - 39) <input type="checkbox"/> A. <input type="checkbox"/> B. 40. <input type="checkbox"/>  |

## 10. Please indicate the platforms that are currently installed/planned: (check ALL that apply)

A. Currently installed

B. Planned for purchase

### NETWORK PROTOCOLS

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> A. <input type="checkbox"/> B. 01. <input type="checkbox"/> TCP/IP | <input type="checkbox"/> A. <input type="checkbox"/> B. 05. <input type="checkbox"/> APPC/APPN/LLU 6.2 | <input type="checkbox"/> A. <input type="checkbox"/> B. 09. <input type="checkbox"/> HTTP |
| <input type="checkbox"/> 02. <input type="checkbox"/> IPv6                                  | <input type="checkbox"/> 06. <input type="checkbox"/> NETBIOS/NETBUEI                                  | <input type="checkbox"/> 10. <input type="checkbox"/> Other Network Protocols             |
| <input type="checkbox"/> 03. <input type="checkbox"/> SNA                                   | <input type="checkbox"/> 07. <input type="checkbox"/> NFS  |   |
| <input type="checkbox"/> 04. <input type="checkbox"/> Novell IPX/SPX                        | <input type="checkbox"/> 08. <input type="checkbox"/> SNMP   |   |

### LAN/WAN ENVIRONMENT

- |   |  |  |
|---|--|--|
| <input type="checkbox"/> A. <input type="checkbox"/> B. 11. <input type="checkbox"/> Gigabit Ethernet | <input type="checkbox"/> A. <input type="checkbox"/> B. 17. <input type="checkbox"/> Layer 3,4 Switching | <input type="checkbox"/> A. <input type="checkbox"/> B. 23. <input type="checkbox"/> DSL |
| <input type="checkbox"/> 12. <input type="checkbox"/> Switched Ethernet                               | <input type="checkbox"/> 18. <input type="checkbox"/> FDDI   | <input type="checkbox"/> 24. <input type="checkbox"/> ISDN                               |
| <input type="checkbox"/> 13. <input type="checkbox"/> Fast Ethernet                                   | <input type="checkbox"/> 19. <input type="checkbox"/> 100Base-T  | <input type="checkbox"/> 25. <input type="checkbox"/> Frame Relay                        |
| <input type="checkbox"/> 14. <input type="checkbox"/> Ethernet  | <input type="checkbox"/> 20. <input type="checkbox"/> 10Base-T   | <input type="checkbox"/> 26. <input type="checkbox"/> Private Line T1, T3, FT-1, SONET   |
| <input type="checkbox"/> 15. <input type="checkbox"/> ATM   | <input type="checkbox"/> 21. <input type="checkbox"/> Fibre Channel                                      | <input type="checkbox"/> 27. <input type="checkbox"/> Other LAN/WAN Environment          |
| <input type="checkbox"/> 16. <input type="checkbox"/> Token Ring/Token Ring Switching                 | <input type="checkbox"/> 22. <input type="checkbox"/> Wireless LANs                                      |  |

### NETWORK OPERATING SYSTEM

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> A. <input type="checkbox"/> B. 28. <input type="checkbox"/> Windows NT/Windows 2000 | <input type="checkbox"/> A. <input type="checkbox"/> B. 31. <input type="checkbox"/> Novell (NetWare 2.X,3.X) | <input type="checkbox"/> A. <input type="checkbox"/> B. 34. <input type="checkbox"/> Banyan (Vines) |
| <input type="checkbox"/> 29. <input type="checkbox"/> Novell (NetWare 5.X)                                   | <input type="checkbox"/> 32. <input type="checkbox"/> LINUX   | <input type="checkbox"/> 35. <input type="checkbox"/> IBM (LAN Server)                              |
| <input type="checkbox"/> 30. <input type="checkbox"/> Novell (NetWare 4.X)                                   | <input type="checkbox"/> 33. <input type="checkbox"/> Microsoft (LAN Manager)                                 | <input type="checkbox"/> 36. <input type="checkbox"/> Other Network Operating System                |

### COMPUTER OPERATING SYSTEM

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> A. <input type="checkbox"/> B. 37. <input type="checkbox"/> NT Workstation | <input type="checkbox"/> A. <input type="checkbox"/> B. 42. <input type="checkbox"/> LINUX | <input type="checkbox"/> A. <input type="checkbox"/> B. 47. <input type="checkbox"/> Digital VMS                |
| <input type="checkbox"/> 38. <input type="checkbox"/> Windows 2000                                  | <input type="checkbox"/> 43. <input type="checkbox"/> DOS                                  | <input type="checkbox"/> 48. <input type="checkbox"/> Macintosh   |
| <input type="checkbox"/> 39. <input type="checkbox"/> Windows 98/95/3.1                             | <input type="checkbox"/> 44. <input type="checkbox"/> OS/2, OS/2 WARP                      | <input type="checkbox"/> 49. <input type="checkbox"/> Other Computer Operating System                           |
| <input type="checkbox"/> 40. <input type="checkbox"/> Intel based UNIX                              | <input type="checkbox"/> 45. <input type="checkbox"/> OS/400                               |   |
| <input type="checkbox"/> 41. <input type="checkbox"/> RISC based UNIX (incl. SOLARIS)               | <input type="checkbox"/> 46. <input type="checkbox"/> IBM MVS/VM/VS/ESA                    | None of the above (1 - 49) <input type="checkbox"/> A. <input type="checkbox"/> B. 50. <input type="checkbox"/> |

## 11. Which of the following hardware platforms are installed/planned in your company? (check ALL that apply)

A - Mainframes (Large Scale)

- ☐ 1. ☐ IBM  
☐ 2. ☐ Other

B - Minis (Midrange)

- ☐ 1. ☐ IBM RS/6000  
☐ 2. ☐ IBM AS/400  
☐ 3. ☐ Digital/Tandem/Compaq  
☐ 4. ☐ Unisys  
☐ 5. ☐ H-P  
☐ 6. ☐ Other

C - Workstations

- ☐ 1. ☐ Sun Microsystems  
☐ 2. ☐ H-P  
☐ 3. ☐ Digital/Compaq  
☐ 4. ☐ IBM  
☐ 5. ☐ Silicon Graphics  
☐ 6. ☐ Other

## 12. What is the estimated gross revenue of your entire company/institution? (check ONE only)

- |   |   |  |
|---|---|--|
| <input type="checkbox"/> 1. <input type="checkbox"/> \$20 Billion or More             | <input type="checkbox"/> 5. <input type="checkbox"/> \$100 Million to \$499.9 Million | <input type="checkbox"/> 9. <input type="checkbox"/> \$4.9 Million or Less |
| <input type="checkbox"/> 2. <input type="checkbox"/> \$10 Billion to \$19.9 Billion   | <input type="checkbox"/> 6. <input type="checkbox"/> \$50 Million to \$99.9 Million   | <input type="checkbox"/> 10. <input type="checkbox"/> None of the above    |
| <input type="checkbox"/> 3. <input type="checkbox"/> \$1 Billion to \$9.9 Billion     | <input type="checkbox"/> 7. <input type="checkbox"/> \$10 Million to \$49.9 Million   |  |
| <input type="checkbox"/> 4. <input type="checkbox"/> \$500 Million to \$999.9 Million | <input type="checkbox"/> 8. <input type="checkbox"/> \$5 Million to \$9.9 Million     |  |

## 13. For which areas outside of the U.S.A. do you have purchase influence? (check ALL that apply)

- |   |  |  |   |
|---|--|--|---|
| <input type="checkbox"/> 1. <input type="checkbox"/> Europe | <input type="checkbox"/> 3. <input type="checkbox"/> South America | <input type="checkbox"/> 5. <input type="checkbox"/> Middle East | <input type="checkbox"/> 7. <input type="checkbox"/> Canada |
| <input type="checkbox"/> 2. <input type="checkbox"/> Asia   | <input type="checkbox"/> 4. <input type="checkbox"/> Australia     | <input type="checkbox"/> 6. <input type="checkbox"/> Africa      | <input type="checkbox"/> 8. <input type="checkbox"/> None   |



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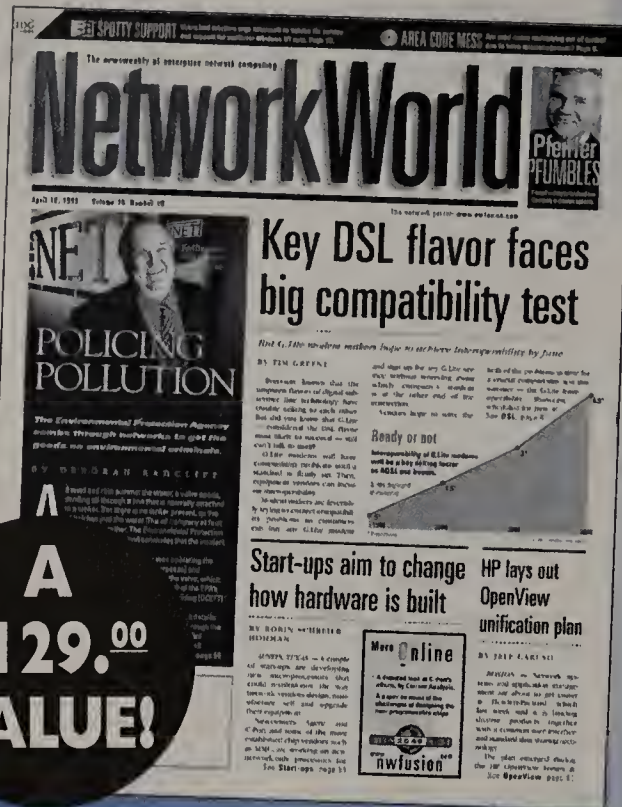
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# Enterprise Applications

Intranets, Messaging/Groupware, E-commerce, Security, VPNs, Network Management, Directories



## Briefs

EYT, formerly Ernst & Young Technologies, has introduced a hosted financial reporting application service based on Lawson software and targeted at start-ups. The GoFinancials service includes basic bookkeeping functions, reports and formats suitable for auditors, and line-of-business-based reports for investors. The service, which is housed at Equinix data centers, is accessed over the Internet and costs \$600 per month, with each additional user costing \$200 per month.

EYT: [www.eyt.com](http://www.eyt.com)

Magnum Technologies of Eden Prairie, Minn., has introduced software for consolidating and correlating network and system events and for performing root-cause analysis. The company claims its Coordinator product can process thousands of events per second. The software features a browser-based interface and works with popular management platforms such as Hewlett-Packard OpenView and Tivoli NetView. Coordinator also works with Magnum's Cap-Trend product, which interprets data collected by SNMP managers and presents it to users in Web-based reports.

Coordinator costs \$30,000 for less than 250 nodes, \$60,000 for 250 to 1,000 nodes, and \$90,000 for more than 1,000 nodes.

Magnum: [www.magnumtech.com](http://www.magnumtech.com)

Frictionless Commerce has announced eMarket Suite, software that resides on Windows NT and Solaris Web servers to host and manage multiple catalogs, search content, conduct auctions and support buying decisions based on factors other than just price. The suite, which costs \$250,000, replaces the company's PurchaseSource software.

Frictionless: [www.frictionless.com](http://www.frictionless.com)

IN-SITE: *Lessons from Leading Users*

## Retailer Jos. A. Bank gives Web site new look

BY ELLEN MESSMER

HAMPSTEAD, MD. — Retailer Jos. A. Bank Clothiers last month gave its e-commerce site a fresh look that lets online customers not only order stylish men's clothing, but also check for availability of inventory, get order and shipment confirmation through e-mail and track shipping status.

Jos. A. Bank, which became an e-merchant more than two years ago when it launched its Web site, has been in business since 1905. The company generates about \$200 million in annual revenue through its 110 stores, print catalog and online site.

The online store at [www.josbank.com](http://www.josbank.com) last year generated about 1% of total sales, with this year showing a clear upward trend, according to Chief Financial Officer Dave Ullman. This prompted Jos. A. Bank to



Jos. A. Bank is now giving customers access to applications previously accessible to employees only, says Bonnie Luzi, the retailer's director of catalog and e-commerce operations.

improve the site, with an eye toward selling more than clothing in the future, although details on that are

not yet public.

"We see the Web as a tool to try and expand beyond men's clothing," Ullman says. "It's clearly a venue for trying new things."

"Now that we have a more robust commerce site, we can try new things," he adds.

Among those new things is giving customers access to real-time shipping information previously directly accessible to employees only. More specifically, the retailer has given online customers access to its retail.dot.commerce application, which is sold by a company called CommercialWare. Giving customers online access to such data is designed to help them help themselves, while lightening the load on customer service representatives at Jos. A. Banks' call centers.

As a first step, Jos. A. Bank swapped  
See **Jos. A. Bank**, page 46

## Data-mining service targets e-business sites

*Services include daily reports on Web site activities such as customer behavior and site performance.*

BY MICHAEL MARTIN

SEATTLE — DigiMine has launched hosted data mining and warehousing services for companies lacking the tools, resources or time to build their own systems for tracking Web site activity.

The company claims its DigiMine Services can be used to build a data warehouse for a customer in days, rather than the weeks or months it would take a customer do the same on its own.

DigiMine is focusing on midsize to large corporations that require reports on their Web site or e-commerce activity.

The process of setting up a data warehouse for a customer begins with the company sending DigiMine data it wants warehoused, or DigiMine can collect data from the customer over a secure Internet connection.

DigiMine then aggregates the data into blocks via data-mining algorithms and lets clients access data reports

through a Web browser. Authentication and Secure Sockets Layer encryption provide security.

The data warehouse is kept up-to-date through a tool known as a Data Slurper, which is installed on a company's data repositories. The Slurper, which works with any OLE-DB-compliant database, captures data, encrypts and compresses it, and sends it to DigiMine's data center.

Bassel Ojjeh, DigiMine's chief operating officer, claims the Slurper doesn't have a significant impact on WAN traffic and can be scheduled to send data back at varying intervals.

The application service provider to date has tested the service mainly with customers using fractional T-1 lines, he says.

Once a customer's data has been warehoused, the customer's end users can access a number of reports including customer behavior, site performance, product consumption, browse-

to-buy conversion and marketing campaign effectiveness.

DigiMine offers its services off of Intel servers housed in an Exodus data center.

The company's services start at \$5,000 per month.

DigiMine: [www.digimine.com](http://www.digimine.com)

[www.nwfusion.com](http://www.nwfusion.com)

# DATA MINES

DigiMine claims benefits galore. See what you think of its service offerings.





# Web agent technology addresses privacy needs

Start-up OneName's extensible name service safeguards exchange of XML documents between end users and Web sites.

BY CAROLYN DUFFY  
MARSAN

SEATTLE — Start-up OneName announces today an Internet data exchange technology that lets Web sites offer their customers an array of features including privacy protection, one-click registration and automatic form filling.

Called the extensible name service (XNS), the technology creates Web agents to exchange personal profile information between end users and Web sites. XNS processes, links and synchronizes documents written in XML.

With XNS, an end user can create an XML document that includes the person's name, e-mail address and other personal information. This digital profile is managed by an XNS personal Web agent, which distributes the information according to the end user's privacy and security preferences. When the end user visits an XNS-compliant Web site, his Web agent selectively releases information to negotiate privacy contracts, enter passwords and fill out forms. If the end user changes his digital profile, his Web agent automatically updates the information

on every compatible Web site.

"There's going to be a new, standard tool used by consumers and businesses that will be as commonplace as the browser, and that is the Web agent," says Drummond Reed, chief technology officer and founder of OneName. "A Web agent is like putting a server on your side of the transaction. Your server is talking to their server on your behalf to solve a whole slew of problems."

OneName sells XNS business agents for \$100 per year, while personal agents based on e-mail addresses are free.

For Web sites, OneName touts the ability of XNS to automatically negotiate legally binding privacy contracts with end users. The Web site's XNS agent requests particular data from an end user and outlines how the data will be used. The consumer's XNS agent interprets this request before a deal is struck and the information is exchanged. Both agents store a copy of the privacy contract.

"For Web sites, XNS is a way of providing strong trust relationships with customers," Reed says.

OneName has created a

nonprofit organization called XNSORG to oversee XNS protocol development and maintain open source code. The first ISP to license XNS is freeinternet.com.

Jawad Abbassi, a senior analyst at The Yankee Group in Boston, says XNS is an interesting technology, but it's too soon to say how successful OneName will be at signing up end users, ISPs and Web sites. "They need a critical mass of consumers, and they also need a critical mass of Web sites," Abbassi says.

OneName: [www.onename.com](http://www.onename.com)

## Microsoft's SMS gets a boost

Tally integrates its asset management technology with Microsoft offering.

BY JOHN FONTANA

LEBANON, N.H. — IT managers who run Microsoft's System Management Server but long for better asset management tools can now integrate software from Tally Systems.

Tally has released Version 1.1 of its TS.Census asset management software, which includes integration with Microsoft's SMS software, which is used for tracking hardware and software inventories and for electronically distributing and installing software.

Asset management is a technology that helps IT organizations accurately take inventory of their hardware and software assets, as well as track those assets through their life cycle. The data can help companies better control software license compliance, track aging computers and manage lease agreements on

hardware.

At first glance, TS.Census and SMS seem to overlap in their capabilities to take inventory of hardware and software running on a network. However, TS.Census can provide a much more fine-tuned evaluation of assets than SMS. For example, SMS may describe a network computer as an IBM-compatible machine, while TS.Census can add the make, model and serial number.

"SMS can be complicated to use and the inventory data often difficult to interpret," says Patricia Adams, an analyst with Gartner Group in Stamford, Conn. "Customers often say SMS returns too much data, and it is not really designed for taking inventory."

Adams says the integration between the two products means SMS users will have to introduce a second tool into the mix, and that is a scenario that Gartner tries to steer clients away from.

Tally is trying to reduce that issue by integrating the data TS.Census collects directly into SMS repositories. Once data is exported from TS.Census, it appears as standard SMS inventory data. The integra-

tion with SMS replaces an add-on module that let users share data between the predecessor to TS.Census, called Net.Census, and SMS. The data, however, had to be maintained within each application.

"SMS users have a single interface to discover assets, analyze data and do reporting," says Sarah Clerkin, product manager for TS.Census.

TS.Census 1.1 also features integration with TS.Asset, which allows analysis of hardware and software assets.

In addition to integration with SMS, Tally Systems has added a software developer's kit so companies can design applications that can tap into the inventory data in TS.Census.

The software developer's kit also supports the creation of Java applets that add Web-based features to TS.Census. The applets can be used to create browser-based forms that technicians can use on an intranet to log information into TS.Census when they are setting up computers or software in the field.

TS.Census runs on Windows NT and 2000, and is priced at \$25 per PC for 500 PCs.

Tally: [www.tallysystems.com](http://www.tallysystems.com)

Jos. A. Bank,  
continued from page 45

its older Web-based catalog software, supplied by a third-party hosting provider, which lacked a way to easily integrate content into back-end systems. The retailer then

query such as "blue shirts," and receive a list of them.

To transmit data from retail dot.commerce to the InterWorld catalog, the IT staff at Jos. A. Bank is using IBM's MQSeries server software, which lets disparate systems exchange data with each other through a message queuing process.

"MQSeries lets us give online customers a kind of front-end visibility to the commerce site through the messaging with the CommercialWare system," says Bonnie Luzi, director of catalog and e-commerce operations. "InterWorld has these customer service functions that can accept this data."

The firm is using the back-end CommercialWare software with MQSeries to send e-mail to customers with order confirmations and shipment data.

With the new online catalog look, Jos. A. Bank is also trying something else — encouraging customers to use a registration process at [josbank.com](http://josbank.com) so their personal data is entered only once. The idea is to make it easier for them to shop and, of course, for the retailer to sell merchandise. ■



ADAM AUEL/MPG

**"Now that we have a more robust commerce site, we can try new things."**

Dave Ullman, chief financial officer,  
Jos. A. Bank

bought InterWorld's online catalog application and set it up in-house on a Windows NT server.

The InterWorld catalog application features a search capability that the previous software lacked. With InterWorld, customers can enter a

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'Net Insider . Scott Bradner

## VAGUE REMEMBRANCES OF HOME

I seem to remember that this Internet thing was supposed to cut down on travel by supporting videoconferencing. Thirty-five thousand feet over Kansas and a few days into a 15-day series of trips that has me sleeping in my own bed only two nights of the 15, I am deep into the realization that the reverse seems to be true.

Not that long ago, pundits of every stripe, a myriad of start-ups and Wall Street analysts evaluating airline stocks said videoconferencing was going to reduce the need for business travel. What happened to those predictions? Does the reliability of those predictions teach us anything about what technologies will and will not change our lives in the future?

Videoconferencing did not fail to reduce flights because the technology could not be made to work. I was

at two companies in the last two days that make use of high-quality videoconferencing systems. Large screens, good resolution (you could see that the person on the other end was smiling when he made a snide remark), and near-TV rate screen updates make these systems effective. They are not cheap and require reasonable bandwidth (384K bit/sec) to operate, but they convey most of the information humans use for communication. Such a system was in use in one of the meetings I was in, but in spite of this, all but one of the visitors had flown hundreds or thousands of miles to take part in this four-hour meeting.

What happened to the predictions is they did not adequately take into account human behavior. If this seems like a rather obvious thing to take into account, it should be. But it

is constantly being discounted. In the case of videoconferencing, it seems like most humans still interact better when they are face to face ("Better" might not be the right word for some people — let's say "more efficiently"). Thus, airlines are seeing more business travel than ever before.

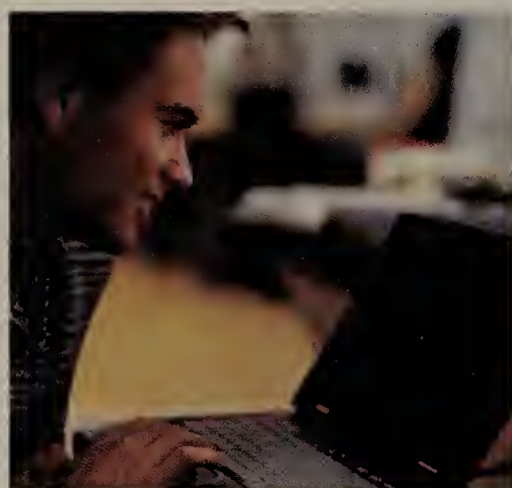
Other predictions that might be suspect include the assumption that Internet phone users will always demand, and be willing to pay for, high-quality calls. Or that major, studio-produced content will be more valuable than person-to-person interaction. Or that complex, slow Internet services will make the Wireless Application Protocol successful, and make the tens of billions of dollars being spent on wireless frequencies a worthwhile investment. Or the assumption that users will want wireless service providers to

know where they are so they can be told where the nearest McDonald's is. Or that consumers would never pay for rationally priced music on the 'Net.

An awful lot of money is riding on the above and other assumptions about people and their use of the Internet. I cannot predict for sure which assumptions are right, but I will predict that most of the above are wrong because the people making the assumptions forget to look into the mirror.

Disclaimer: Harvard has lots of mirrors and they are used some of the time, but the above is my prediction — not Harvard's.

*Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@sob.com.*



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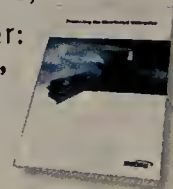
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# Technology Update

An Inside Look at the Technologies  
and Standards Shaping Your Network

## Ask Dr. Intranet

By Steve  
Blass

We're running  
a Novell 5.1 server  
on a WAN and  
thought we had set  
it up to be a stand-  
alone server. We  
now get this error

message: "SLP UA warning:  
unable to contact directory  
agent. Verify DA availability, IP  
connectivity, DA discovery  
options and configurations."  
Can I shut down the Service  
Location Protocol and call it a  
day? We couldn't find the  
answer in the autoexec.ncf or  
in the server settings.

I had to call on reinforce-  
ments for this one. One sea-  
soned Novell veteran replied,  
"Have you tried the following  
set command from a server  
command prompt? SLP Broad-  
cast = Off."

This was followed by a  
more detailed suggestion from  
another certified Novell admin-  
istrator, who explained, "You  
may not want to unload the SLP  
agent nlm. What you can do to  
stop the messages is make  
your server the directory agent  
server even though it will be  
the only one. Just type SLPDA  
at the console and say 'yes.'  
This will add a scope object to  
your [Novell Directory Ser-  
vices] tree. This is a very good  
feature of NDS. You should  
read about it. Novell servers  
aren't like [Windows] NT  
[servers] — they can't just  
'stand alone.' You could  
remove NDS from the server  
and only log on with Bindery  
connections such as 3.X. This  
will make the server 'stand  
alone' and still have all the  
WAN protocols you need."

Blass is a network architect  
with Sprint Enterprise Network  
Services in Houston. He can be  
reached at [dr.intranet@paranet.com](mailto:dr.intranet@paranet.com).

## MSPP technology matures

BY DAVID BELLANDI

Multiservice data traffic is  
expected to grow by 60%  
this year and by 90% from  
2001 to 2003, according to the industry  
analyst firm RHK. In response to growing  
demand from enterprise customers, car-  
riers are racing to build integrated multi-  
service networks, especially in metropol-  
itan areas, by deploying a variety of  
multiservice platforms.

These multiservice provisioning plat-  
forms (MSPP) are deep in new technol-  
ogy, rich in services and advanced in pro-  
visioning capabilities.

MSPPs enable service providers to  
offer customers new bundled services at  
the transport, switching and routing lay-  
ers of the network, and they dramatically  
decrease the time it takes to provision  
new services while improving the flexi-  
bility of adding, migrating or removing  
customers.

These provisioning platforms allow  
service providers to simplify their edge  
networks by consolidating the number of  
separate boxes needed to provide intelli-  
gent optical access. They drastically  
improve the efficiency of SONET net-  
works for transporting multiservice traffic.

The platforms also reduce the num-  
ber of network management systems  
needed, and decrease the resources  
needed to install, provision and maintain  
the network.

MSPPs are very complex systems,  
involving a variety of hardware and soft-  
ware technologies, millions of lines of  
code and a range of functionality. Each  
vendor's approach is unique and opti-  
mized to solve a specific set of problems.

- Physical interfaces — Because MSPPs  
are close to the customer, they must inter-  
face with a variety of customer premises  
equipment and handle a range of physical  
interfaces. Most vendors support tele-  
phony interfaces (DS-1, DS-3), optical inter-  
faces (OC-3, OC-12), and Ethernet inter-  
faces (10/100Base-T). DSL and Gigabit  
Ethernet interfaces may also be offered.

- Protocol processing — MSPPs have

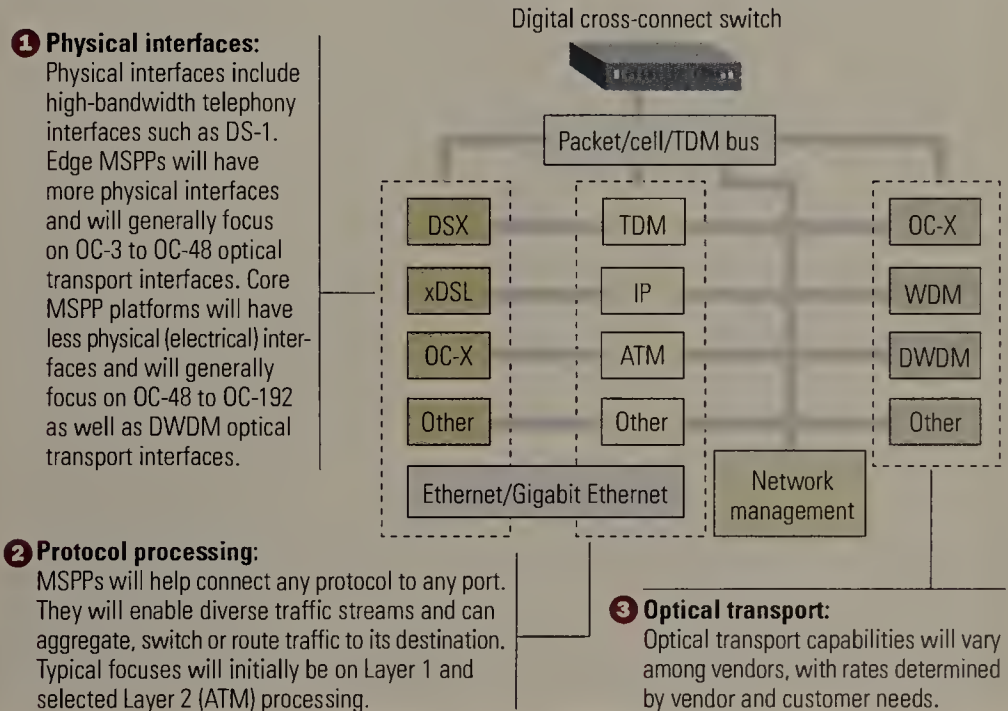
dramatically increased the intelligence  
present at the network edge due to the  
increased amount of higher-layer protocol  
processing. MSPPs can break open diverse  
types of traffic streams, and aggregate,

function at the edge of the network, and  
avoid backhauling traffic to the central  
office for cross connecting. This can free  
transport bandwidth as well as expensive  
digital cross-connect system ports in the

## HOW IT WORKS

### Multiservice provisioning platforms (MSPP)

Integrated multiservice networks will use MSPPs to provide connectivity across  
hardware and protocol layers in use, and for future networking enhancements. This  
diagram contains the main elements used in edge and core MSPP platforms:



switch or route traffic to its proper desti-  
nation. MSPPs targeting the metropolitan  
core usually focus on Layer 1 (time-divi-  
sion multiplexer [TDM]) and selected  
Layer 2 (ATM) processing. Those closer to  
the edge will target additional services  
such as frame relay and edge routing.

- Optical transport — The optical trans-  
port capabilities of MSPPs vary. MSPPs tar-  
geting the metropolitan core will typically  
have backplane speeds in the 240G to  
400G bit/sec range, starting with OC-48  
and scaling to OC-192 and dense wave  
division multiplexing (DWDM). Converse-  
ly, MSPPs targeting the metropolitan edge  
will typically be in the 6G to 50G bit/sec  
range, starting with OC-3/OC-12 and scal-  
ing to OC-48 with DWDM in the future.

- Integrated digital cross-connect  
switching — This is a functionality not  
incorporated in all MSPPs. It enables car-  
riers to do much of the cross-connect

central office.

- Provisioning and network manage-  
ment — The flexibility in which an MSPP  
can be provisioned and managed is largely  
a result of the architecture. Architectures  
with combined physical interfaces and  
protocol processing require a separate  
card for each protocol and interface com-  
bination (such as ATM OC-3 card and  
Frame Relay T-1 card). Vendors that have  
separated physical interfaces from proto-  
col processing can provide "any protocol  
to any port" provisioning. This drastically  
increases the flexibility a service provider  
has with a given set of interfaces and  
allows services to be remotely provisioned  
via software.

Bellandi is director of corporate mar-  
keting at Mayan Networks. He can be  
reached at [bellandi@mayannetworks.com](mailto:bellandi@mayannetworks.com).

## The Edge

For more Edge-related  
information, go to  
[www.nwfusion.com/edge](http://www.nwfusion.com/edge).





Gearhead . inside the network machine . Mark Gibbs

## DHCP FEEDBACK AND A PUZZLE

**D**HCP, our topic for the past few weeks, was a popular one, and your feedback has warmed the cockles of Gearhead's heart. Kevin Noll wrote,

"In your discussion of [Dynamic Host Configuration Protocol] servers allocating duplicate IP addresses [specifically when there are multiple DHCP servers],

you mention that you didn't know of any DHCP servers that handle this problem very well.

First, note that RFC 2131 allows the existence of multiple DHCP servers on the network, and specifies that the client is responsible to choose one, and only one, if more than one server replies to

the Discover.

Cisco's Network Registrar [formerly American Internet] implements a fail-over configuration. This system allows a secondary CNR DHCP server to allocate addresses from a scope configured on the primary when the primary is not available. When the primary is brought back online, the secondary transfers information about those leases to the primary so that duplicates are not handed out and so that leases continue to be renewed properly. CNR simultaneously allows a 'load-balancing' configuration that works with this failover configuration.

Nortel Networks' NetID allows a similar configuration of primary and secondary DHCP servers. Check Point's Meta IP claims to have the same capability. But I do not have experience with this particular server, so I cannot speak to its capabilities.

I'm not sure you were specifically referring to the failover functionality as much as the inability to correctly deal with duplicate allocations, but in a well-thought-out DHCP network [with a good DHCP server ... that is, not the one that comes with you-know-who's operating system] this problem is minimized while still providing fault-tolerant IP address assignment."

Paul Villarno commented, "If I understand the problem you outlined in your article, you should try Novell's DHCP server. It overcomes the problem you mentioned because the DHCP data is not tied to any particular server but rather to the directory (Novell Directory Services). As such, it doesn't matter if your primary DHCP server goes down, you just nominate another server to take over its function, it reads the data from the directory, and *voila*. Further reading: [www.nwc.com/1117/1117ws1.html](http://www.nwc.com/1117/1117ws1.html)."

Finally, a tricky problem. John Becker writes, "Thanks for the series of articles on DHCP. The latest one struck a chord with me. I am volunteer administrator for a small (four NT Servers, about 115 clients) school network. We have had problems with DHCP conflicts where two or more clients try to grab the same IP address. We have three NT servers with SP4 and one server is the primary domain controller. All servers have static IP addresses, and we have set scopes for specific IP address range for DHCP use.

Initially, I cranked the lease period down to eight hours, on the theory that overnight all clients would release. No luck, so I cranked it back up to two, five, 10, 30 days, and slowly the problems have disappeared. Can you tell me why?"

A great question and Gearhead has wild theories about the problem. Let us throw this one open to Gearhead readers. The first person to send us a solution will win something cool. We have no idea what, but it will be cool.

*Your attempt at fame and the acquisition of cool to [gb@gibbs.com](mailto:gb@gibbs.com).*



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## Editorial

### Approaching security with military tools

With Walt Disney World hacked a few weeks ago and security incidents in general skyrocketing, I went to NetWorld+Interop with security on my mind and liked what I saw in a company called LogiKeep.



LogiKeep was founded in 1997 by two former Navy officers, Derek Harp and Michael Assante, who reasoned that the flood of security information obfuscates the important stuff, making it hard for firms to identify significant threats and respond in a timely way.

Their answer is an early warning system modeled after military intelligence gathering techniques. LogiKeep has

assembled a team of intelligence experts in a command post in Ohio, charging them with scanning some 7,000 sources looking for threats. Sources include everything from government agencies to vendors to hackers and the media.

When customers sign up for LogiKeep's intelligence service they get a PC application they use to identify their network resources. That profile is then used to filter the reports LogiKeep generates.

For example, a company that uses Adobe Acrobat would have been notified in July about a vulnerability involving PDF files. The LogiKeep report describes the vulnerability (good reading for top executives), identifies warning indicators and safeguards (good for security managers), and gives technical information the IT staff will need to fight back.

The top of each report has a graphic that indicates the urgency, the credibility of the information and the severity or potential damage. Users can customize the client so real threats set pagers buzzing.

The reports are also versioned, meaning LogiKeep watches threats as they mature and constantly updates their reports.

The service, which became generally available in August, costs \$25,000 per application per year. Some early customers apparently are buying multiple applications and divvying up watch duty tasks. For example, one group might simply want reports involving security gear such as firewalls, while another might want to watch for Windows NT vulnerabilities.

It's an interesting approach to a huge problem that is only getting bigger. According to Computer Emergency Response Team at Carnegie Mellon University, there were 8,836 security incidents in the first half of this year, vs. 9,859 in all of 1999.

— John Dix  
Editor in chief  
jdix@nw.com

## Message Queue

### TRUE-LIFE VIEW

Jeff Shapiro's "Why I want to be a CCIE" ([www.nwfusion.com](http://www.nwfusion.com), DocFinder: 1042) is an interesting column that gives a true-life perspective on a difficult path to a worthwhile achievement, not just in the IT world but in one's life.

Gary Marsh  
Network systems engineer  
Cable & Wireless  
Bristol, U.K.

### NOT READY FOR PRIME TIME

Regarding your story "An inside look at AT&T's cable gambit" ([www.nwfusion.com](http://www.nwfusion.com), DocFinder: 1043): Based on my personal experience with AT&T's digital cable telephone service, I wouldn't recommend it to my worst enemy.

I thought I would be a pioneer and port both my home numbers to AT&T from Ameritech — big mistake.

My service was installed in February. The cable was not buried until three months later, only after repeated complaints to service technicians and the customer service desk. When the service is working (lately that's rare), callers experience frequent "all circuits busy" conditions. Clearly AT&T did not install enough links between its network and Ameritech's.

When I call AT&T's tech support number (which happens often), wait times are extremely long; a 30-minute wait is not unusual. My service once was out for seven days. Occasionally the service comes back on, but only for an hour or two.

This service is not ready for prime time. I would not recommend using it even if it were free.

Kevin McInden  
Schaumburg, Ill.

### DIRTY WINDOWS

Kevin Tolly's column "Is Windows 2000 fit for 'always-on' network applications?" ([www.nwfusion.com](http://www.nwfusion.com), DocFinder: 1044) contains very little meat, mostly fat. Failure of a gateway can hardly be construed as a failing of Win 2000. With respect to the reliability of the

operating system, it is my experience that Win 2000 is much more reliable, robust and dependable than Windows NT 4.0 ever will be. These conclusions were drawn while the operating system was still in beta testing. Now that the release code has been out for a while, they are still true. All operating systems will crash at one time or another; the more reliable you try to make something, the higher the costs involved in the process. You reach a point where you can break the bank trying to attain the unattainable — namely 100% reliability. I think given those circumstances, Win 2000 is very reliable.

Gragg Vaill  
Des Moines, Iowa

### COMMENT CLARIFIED

While I agree with the gist of the comments ascribed to me in the story "XML struggling for enterprise customer acceptance" ([www.nwfusion.com](http://www.nwfusion.com), DocFinder: 1046), I feel obligated to clarify: My company has used WebSphere (specifically, IBM's Net.Commerce) for our very successful e-commerce site. We've used Lotus Notes and IBM's Net.Data to "Webify" access to our J.D. Edwards supply-chain system for some of our trading partners.

Joseph Giles  
Vice president and chief information officer  
Vans  
Santa Fe Springs, Calif.

### MISSING THE BOAT

Regarding the story "Lotus offers hosted apps" ([www.nwfusion.com](http://www.nwfusion.com), DocFinder: 1047):

Until IBM introduces a much tighter integration between WebSphere and Lotus Domino, it will always be in the backwater.

The middleware Hosting Management System seems like a great idea, if it's any good. But frankly, as someone with eight years of solid Lotus Notes experience, I think Lotus (and IBM) has really missed the boat on a number of key technical initiatives.

Rolf Pfotenbauer  
Multimedia manager  
Queensland Rural Medical Support Agency  
Brisbane, Australia

E-mail letters to [jdix@nw.com](mailto:jdix@nw.com) or send them to John Dix, editor in chief, Network World, 118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.

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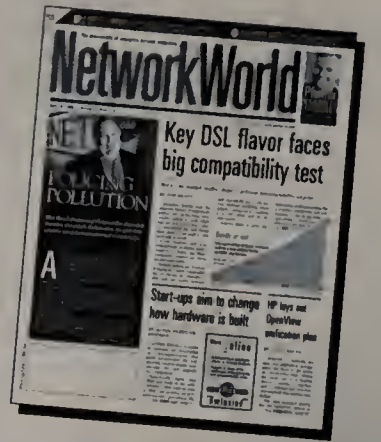
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## WHAT'S IN STORE FOR STORAGE

**W**hen George Gilder, who has become something of a Nostradamus to the technology industry, declared "The End of Storage" in a recent issue of his newsletter, IT managers may have raised an eyebrow. In reality, what is ending is the way storage has been perceived and managed to date.

Before the Internet, companies regarded storage as an operation in which large disk farms stood ready to relay requested information. As storage requirements grew, corporations began implementing separate storage-area networks (SAN), which manage storage as a unit and can be easily attached to the Internet. But SANs are still contained and managed within the corporation at great expense, largely due to the cost of finding, hiring and retaining skilled IT workers.

Now a group of start-ups called storage service providers (SSP) is taking a new approach to storage. These companies treat storage as a utility much like electrical or telephone services. They offer exactly what SANs offer, but the network infrastructure and storage are managed by the SSP, not an internal IT staff.

Start-ups such as StorageNetworks, StorageWay, Centripetal, WorldStor, Intira, Vixel, 3Pardata and Desana Systems (the latter four firms are Mayfield Fund investments) are testing concepts related to providing storage as a service. Storage utility services are being provided through centralized SANs at collocation facilities interconnected with direct Internet backbones. Architectures based on EMC Fibre Channel and network-attached storage systems, a fabric of Brocade switches, and back-up, restore and file system replication software from Veritas or Legato (a Mayfield investment) are also being deployed.

All of these companies treat stored data as highly transactional rather than archival. This approach fits the Internet world, where stored data is continually being requested and modified.

Estimates for how large the SSP market will grow over the next several years are fairly aggressive, ranging from \$5 billion to \$7 billion worldwide by 2003. However, a number of hurdles need to be overcome.



In theory, an SSP is supposed to deliver the same capacity and performance as on-site storage. But right now, there are limitations to Fibre Channel connections. Because of distance restrictions, SSPs have to locate in large metropolitan areas. Deploying a large-scale storage system may require an entirely new fiber network to provide Fibre Channel connections to the various host bus adapters, storage switches and hubs.

Early SSP adopters will be small companies, mainly e-commerce and dot.com companies, which cannot afford the hardware or manpower to meet their storage requirements. Large corporations will take a slower approach, initially using such services as disaster recovery or backup. In any event, SSP start-ups will have to prove to potential corporate customers that they can provide high levels of reliability and security.

*Fong is a managing general partner with Mayfield Fund, a venture capital firm in Menlo Park, Calif. He can be reached at [kfong@mayfield.com](mailto:kfong@mayfield.com).*

## B2B IS IDEAL TEST BED FOR XML DIGITAL SIGNATURES

**W**e can now take for granted the notion that electronic signatures, under U.S. law, may be as legal and binding as the pen-and-paper variety. The new Electronic Signatures in Global and National Commerce Act has removed legal impediments to potential acceptance of various electronic techniques for signing commercial contracts and other agreements.



Now the critical issue is not whether electronic signatures are valid, but whether any particular electronic signature technology or procedure can withstand real-world legal challenges. There is no legal precedent for digital signatures, and a body of

relevant case law will take several years to build. We should be avidly putting our new "cyber-Hancock" law into practice, but instead the more cautious legal advisors are urging us to take it slow and steady.

But it would be absurd for us in the private sector to wait a generation or two, deferring electronic signature implementations until lawyers and judges make up their collective minds on the matter. Besides, the legal community is waiting for us to make the first move, try out various approaches, and come forth with real-world test cases. The new law gives us free rein to continue developing digital signature technologies, based on legislators' desire to let the free market set its own standards in this fast-changing area.

That's why, for example, the new law uses the generic term "electronic signatures" rather than the more specific "digital signatures." The latter term would imply that the correct, government-sanctioned

approach involves use of such existing technologies as public-key cryptography, X.509 certificates and the Digital Signature Algorithm. These technologies may be perfectly suited to the task but are not necessarily, in their current forms, the final word on the subject.

One of the law's core principles is the U.S. government's desire to "permit parties to a transaction to determine the appropriate authentication technologies and implementation models for their transactions, with assurance that those [approaches] will be recognized and enforced." A good place to start experimenting with digitally signed transactions is in today's business-to-business trading communities. Those communities come in myriad forms, ranging from electronic marketplaces to traditional extranets. What they all share is reliance on binding legal contracts that define roles, responsibilities, terms, conditions and risks for participants. There's nothing stopping an e-marketplace operator from implementing a digital signature approach for transactions in its environment, as long as the community's membership agreement describes that approach, and participants assent to it by signing the membership agreement — an act that may represent a participant's only pen-and-paper signature in the community. On commercial contracts in these communities, legally binding digital signatures would be whatever the members have agreed to accept, cognizant of the risks and without regard for whatever signing technologies and practices are accepted in other e-marketplaces.

Digital signatures deliver critical authentication, tamperproofing and nonrepudiation services for legally enforceable transactions, so it's only a matter of time before they're adopted everywhere in the business-to-business arena. But it's doubtful that many business-to-

business trading communities will rush to implement digital signatures without a flexible, general-purpose standards framework for applying and validating signatures on electronic documents. Fortunately, the standards community is well along in defining such a framework: XML Digital Signatures (XML-DSig). XML-DSig is a set of draft specifications that has considerable industry support where it counts: early vendor implementation and ongoing interoperability testing.

What's most important, the XML-DSig framework is application-independent and supports signing of any content type, XML or non-XML, as long as that content can be addressed across the Internet, extranet or intranet via uniform resource identifiers (URI). XML-DSig defines procedures for binding cryptographic signatures to one or more URI-addressable local or network resource and for validating those signatures. XML-DSig also specifies an XML syntax for defining signature blocks that can be embedded in all content types.

We will start to see commercial implementations of XML-DSig early next year. During this time frame, the World Wide Web Consortium and Internet Engineering Task Force, which are jointly shepherding the XML-DSig initiative, are expected to finalize and then ratify the standards. The XML-DSig initiative won't directly address any of the thorny cultural, commercial and legal issues surrounding the notion of electronic signatures, but it will help to clarify the technical contours of the "generally accepted signing practices" that we may begin to take for granted in a few years.

*Kobielus is an analyst with The Burton Group, an IT advisory service that provides in-depth technology analysis for network planners. He can be reached at (703) 924-6224 or [jkobielus@tbgroup.com](mailto:jkobielus@tbgroup.com).*





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# Web-based trading floors bring buyers and sellers together at Internet speed

BY GARY KADET

You're a buyer for a major electronics manufacturer. It's you, your PC, your spreadsheets, your contact database, your requests for quotes, your calculator, your printer and your fax machine. You need to buy scores of components for each PC or television or VCR in your company's product line. You're dealing with hundreds of suppliers. Every time the engineers tweak a product, you need

to change your order.

If you get 99% of the parts delivered on time, that's not good enough. The assembly line only runs when you provide every last part. If the manufacturing operation experiences delays, products don't get shipped on time, the company loses revenue ... and it's your fault.

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# Emarkets



Internet-based, third-party marketplaces, such as e-Chemicals, e-Steel, MetalSite, the PlasticsNet and ChemConnect.

Forrester Research estimates that business-to-business e-commerce totaled \$43 billion in 1998 and could reach more than \$1.5 trillion by 2003. Most of this activity occurs on seller sites, such as W.W. Grainger, Intel and Federal Express.

The far more interesting trend is that 15% to 20% of business-to-business e-commerce is transacted through third-party marketplaces. Forrester predicts total e-marketplace transactions could hit \$500 billion by 2003.

What an e-marketplace offers is the ability to process large volumes of highly specialized information at Internet speed. A buyer can disseminate complex product specifications to hundreds of suppliers with one keystroke, and can view bids that are updated continuously on a personalized home page.

A buying/bidding process that often took weeks can be reduced to 24 hours, and in some cases, 24 minutes.

E-Trons Systems of White Plains, N.Y., and Mountain View, Calif., set up its e-Marketplace over the summer, partnering with IBM Global Services to connect bidders with suppliers of electronic components.

According to e-Trons Chairman and CEO Joseph Jeng, 85% of a typical buyer's time is spent chasing information, dealing with paperwork and analyzing spreadsheets. The real buying, negotiating a good price, takes up only 15%. From the sellers' perspective, the problem is getting your product noticed by buyers who have to review specifications on 300 or so parts for one widget that fits into a larger gadget.

At e-Trons, a buyer personalizes a page on the Web site to reflect the subset of sellers he wants to deal with, personalizes how the RFQs within a given product category will be promulgated to sellers, whether broadcast or narrowcast. The buyer can customize an account page to the point where the quotes received on pricing can be simultaneously received by competing sellers, thereby building in an automatic, self-regulated "best-price" quotation component to the process.

"For one item, they type in what they want, click a button and send it out to the universe of bidders that they have customized to their purpose from the site," Jeng says. "Every time they get a quote back, they will have a notice on the screen. The system will tabulate all the quotations received, with clickable drilldowns for the buyer to see who it is, additional conditions, and they're laid out next to each other so buyers can quickly see and compare the conditions and parameters of each quotation."

Without electronic marketplaces, buyers have to do those cost comparisons by hand. "But with us, they don't have to. This speeds up transactions

## Joseph Jeng, CEO at e-Trons

"The Internet is often described as a cloud. I'm a buyer, I throw my e-mail information about 2,000 XYZ components that are being required into the cloud. The seller gets into the cloud, signs on as himself and he sees such-and-such company has this need. He doesn't need to see anything else about any other part, just what he sells, and does his best to understand and approximate or meet the need. This does not take away control from either the buyer or the seller, but increases it. It reduces the chasing time. The business-to-business site gets rid of the 85% of the things buyers and sellers shouldn't have to do so they can focus on the things they should do — buy and sell effectively."

incredibly," Jeng says.

FreeMarkets, possibly the oldest of the e-marketplaces (in operation since 1995), focuses on bringing buyers and sellers together in more than 100 vertical markets, from coal to tax preparation services. FreeMarkets runs reverse auctions, which, unlike traditional auctions, are designed to drive prices down. Sellers continue to lower their prices until the auction is closed. "This is where suppliers bid for their business in real time," says Jane Kirkland, FreeMarkets senior vice president and chief marketing officer.

According to Kirkland, FreeMarkets boasts a market operation center to answer technical and commercial questions, enforce marketplace rules and attack unique situational problems, such as a bid submitted after the market closes or a disconnection occurring when a bid is made.

"We have a dynamic market-closing feature built into our software. In most cases the buyer and the market maker will set a parameter which specifies that if there's still active bidding at the time of market closure, then the time of market closing is automatically extended — just like in a hockey game. If a minute goes by after that without a new low bid, then the game is over," Kirkland says. This way, FreeMarkets ensures that suppliers continue to enter

bids and to compete for business and that the buyer gets the most competitive pricing.

## Downside risks

Yet, behind every boom lurks the possibility of a bust, and the generally rosy picture painted of the e-marketplace gold rush does concern a few analysts, who worry about credit verification, market saturation, potential for fraud, price collusion and the absence of any specialized regulatory body to oversee this new electronic commodities boom.

- **Fraud:** A hacker could go onto an e-marketplace, represent himself as the purchasing agent for an airline and put in a bid for five million barrels of jet fuel.

The company selling the jet fuel believes it has a legitimate buyer and so does the e-marketplace, which expects a commission on the transaction.

Eventually, someone will discover that the bid was bogus, but, "there's no good information on how often that gets attempted what measures are being taken to prevent it," says Tim Evans, senior energy analyst at Pegasus, a division of Thompson Financial Networks.

Rogue sites run as fly-by-night companies are also a worry. A massive online fraud case has yet to hap-

Continued on page 62



STEVE SVETKEY



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Continued from page 60

pen, but that doesn't mean it won't.

- Credit verification: "Much of the world's business is done on the basis of credit. As far as business-to-business transactions go, we're talking about credit lines that go into the billions of dollars," Evans says.

Evans says a customer may become overextended on credit and the e-marketplace might not find out until it's too late.

- Spin city: Then there's the problem of "fading," in which the e-marketplace shades the information on its site to its own advantage.

"How do I know, sitting in my office, that this site is giving me a representative picture of the market, as opposed to a site that is cleverly reflecting back my own pattern of transactions in a way that anticipates today I'm going to be a buyer rather than a seller and therefore doesn't give me a true reflection of the market, but 'fades' the market," Evans says.

For example, a major airline comes on a given site and asks for a quote for jet fuel. The airline seems a good prospect for buying jet fuel. The temptation would be to quote a price that's a fraction of a cent higher than the real price that the seller is willing to accept. This boosts the e-marketplace's commission, which is based on a percentage of total sales.

Evans says many sites routinely put their own spin on the information they

supply, so a savvy buyer who doesn't want to be "faded" may be forced "right back in the old world having to do my due diligence to compare prices by calling around or using my own search engine comparing prices on 10 different sites."

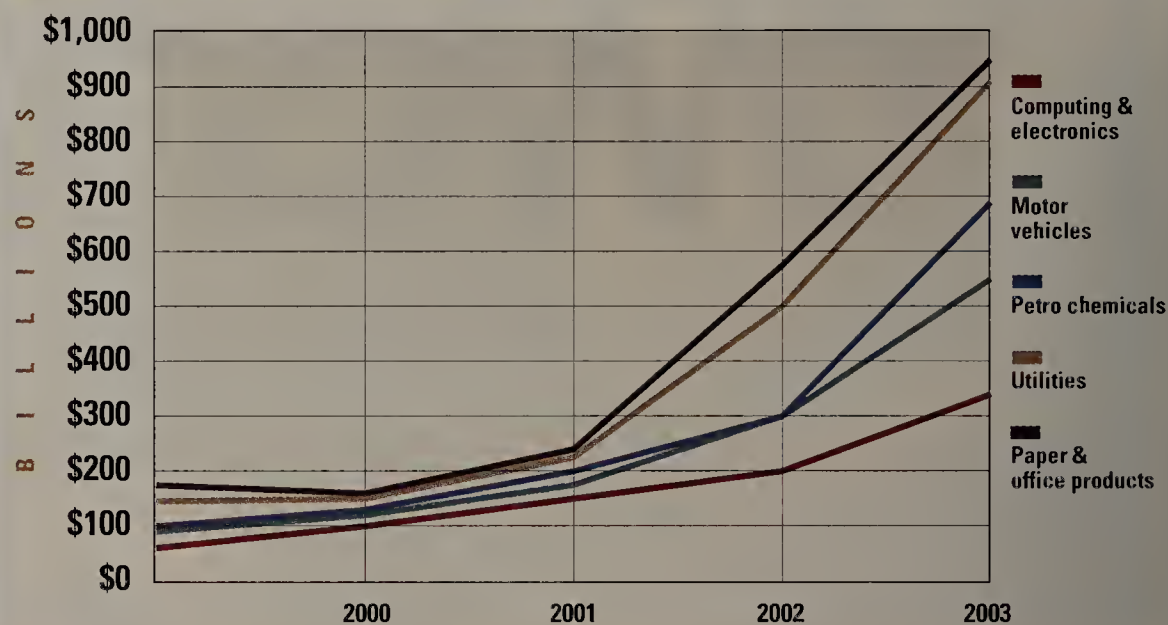
## Market consolidation

Conventional wisdom says there's only enough room for two e-marketplace sites per vertical industry, implying the potential for a shake-out down the road.

"In vertical markets it's going to be a winner take all, if not a winner take most situation," says Ed McCabe, vice president of Merrill Lynch's Internet Research and its business-to-business specialist.

In a particular industry, either you're going to be the New York Stock Exchange or the Philadelphia Stock Exchange. Given the economics of these business models, which are small margins on very big volumes, you need

## Top vertical markets for B2B transactions



SOURCE: MERRILL LYNCH, NEW YORK

to get the lion's share of the volume and liquidity to generate a profitable business. I think the two site per industry estimate is roughly accurate and there are over 700 of these sites now."

## Collusion

Covisint is an auto parts e-marketplace created by GM, Ford, Daimler-Chrysler and Renault/Nissan. Trade Ranger is an e-marketplace formed last April by 14 oil refiners. Both sites were evaluated by the Federal Trade

Commission and have been approved, but their existence and the probability that there will be other e-marketplaces in which competitors team up to buy parts and supplies raises concerns about price collusion.

One scenario has car makers getting together and setting an artificially high price for catalytic converters, putting catalytic converter suppliers at their mercy.

"You have competitors funding, sharing, governing and operating a network that allows for the very efficient dissemination and sharing of information, which could be inappropriate information. There lies the potential to use these platforms for anticompetitive practices," McCabe says.

## Junk bidding

Kirkland of FreeMarkets also warns about "junk bidding," in

which an unqualified bidder comes in with the best bid. "People will think they've achieved a match between buyer and seller, but after the market closes, they'll discover important conditions missing from the RFQs, that there were misunderstandings as to what was being bid on. There is a definite danger of junk bidding. These marketplaces have to be run in a disciplined, careful way, especially when dealing with large pieces of business."

Kirkland believes junk bidding is an issue for each site to try and protect against, as there currently is no governmental oversight.

"There's no regulatory entity to deal with this, no Better Business Bureau. This is a huge pitfall for the e-marketplaces. So for now, it's a matter for individual housekeeping rather than neighborhood watch," she says.

Neighborhood watch could mean a consortium of business-to-business sites overseeing the swell of activity or a regulatory body that might work like the FTC.

But if you're looking into doing business on an e-marketplace, here are some things to check:

- Make sure the site has the capacity to handle negotiations for large commercial contracts. The site has to be robust, with a range of bidding formats.
- Make sure the site verifies the credit of its customers.
- Make sure the site will protect the confidentiality of your information.
- Try to find a site that transparently presents bids and prices without fading.

Kadet is a freelance writer in Cambridge, Mass. He can be reached at [kadetg@aol.com](mailto:kadetg@aol.com).

**Jane Kirkland, senior vice president at FreeMarkets**  
 "We have a dynamic market-closing feature built into our software. In most cases the buyer and the market maker will set a parameter which specifies that if there's still active bidding at the time of market closure, then the time of market closing is automatically extended — just like in a hockey game. If a minute goes by after that without a new low bid, then the game is over."

## FreeMarkets

Statistic	Value
Billion in customer savings <sup>1</sup>	\$1.5
Billion total market volume <sup>2</sup>	\$7.6
Years of experience	5
Goods and services categories	130
Global customers	64
Active suppliers worldwide	5,600
Million surplus assets sold	\$30
Million surplus assets listed	\$750
Offices in seven countries	11

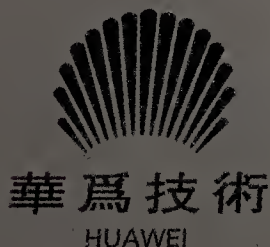
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# CRM: IMPLEMENT IN-HOUSE OR OUTSOURCE?

The application service provider approach to deploying customer relationship management systems offers a speed advantage, but this option is only suited to those with straightforward needs **BY ALAN EVELY**

*E*-businesses and brick-and-mortar shops are rushing to take advantage of customer relationship management, but the rollouts tend to take far longer than many sales executives would like. Enter the application service provider who is ready, willing and able to handle the job for IT.

CRM is all about optimizing profitability, and it's based on the premise that not all customers are created equal. The purpose of CRM systems is to understand and anticipate the needs of your customers and to prioritize services to the best ones.

Using CRM, banks can segment depositors based on their profitability, and retailers can acquire new data and better use information to boost revenue. Even business-to-business operations are adopting CRM as a way to raise efficiency and make sales and service functions more effective.

With the rush by many organizations to adopt or expand CRM functionality, there's been a surge of interest in the ASP deployment model. U.S. spending on hosted CRM services will increase tenfold from \$40 million in 1999 to

more than \$400 million in 2004, according to estimates from Forrester Research, market research firm. IDC, which you'll find in the variety of places, Cheryl Kingstone, financial analyst with The Yankee Group in Boston, says ASPs that offer CRM can be classified into four major types.

- **Traditional ASPs.** Companies such as Corio or USInternetworking host applications developed by leading CRM software vendors such as Siebel or Clarify. "What they are doing is acting like a subcontractor — renting the use of a license," Kingstone says.

- **Self-hosting.** With this model, a software vendor such as Allentis hosts its own CRM application as an alternative means of product distribution. Some vendors may use a third party to provide hosting, but the arrangement is

considered to be self-hosted.

- **Service-oriented ASPs.** Some ASPs offer a variety of services, including CRM, and may provide other business solutions.
- **Vertical ASPs.** Some ASPs focus on a specific industry, such as retail or manufacturing, and offer CRM solutions tailored to that industry.

## Getting close to the customer

As a business owner, you know your customers are the lifeblood of your company. CRM is a way to get closer to your customers and understand their needs better. CRM systems can help you track customer interactions, analyze customer data, and identify trends and opportunities for growth.

For many businesses, CRM is a key to success. It can help you improve customer service, increase sales, and reduce costs. CRM systems can also help you understand your customers better and tailor your marketing efforts to their needs.

However, not all businesses are ready for CRM. Some businesses may not have the data or the resources to implement a CRM system. Others may not see the value in CRM for their business.

An ASP implementation can be a good option for businesses that are not ready for a full-scale CRM system. ASPs can provide a hosted CRM solution that is easy to implement and use. This can be a good way to get started with CRM and see if it works for your business.

There are several reasons why a business might choose an ASP for its CRM needs. One reason is that ASPs can provide a hosted solution that is easy to implement and use. Another reason is that ASPs can provide a solution that is tailored to the needs of a specific business.

Software911.com is a leading ASP for CRM. It offers a hosted CRM solution that is easy to implement and use. Software911.com also offers a variety of other business solutions, including accounting, HR, and marketing.

Software911.com's CRM solution is a hosted solution that is easy to implement and use. It can help you track customer interactions, analyze customer data, and identify trends and opportunities for growth. Software911.com also offers a variety of other business solutions, including accounting, HR, and marketing.

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**Arif Razvi of Exodus says the Web hosting firm keeps track of its partners using Allegis software.**

**Charisse Luckey of Planetfeedback.com implemented CRM from an ASP in only one month, compared to the year she estimates it would have taken her company to deploy CRM on its own.**

Exodus launched the Allegis site last year.

"We went live with the partner site internally in February, and we spent the next three months generating feedback. When we launched externally in June, there would be no catastrophes," Razvi says. The phased deployment went well.

Like Oki, Exodus recognized that one of the greatest benefits of the ASP approach was speed and ease of implementation. Traditional PRM software would have required partners to load and use a separate application to connect with Exodus data. With the hosted Allegis system, partners interact with Exodus through a standard browser.

"If we had tried to build something ourselves there was no chance of rolling it out this year," Razvi says. Moreover, using an ASP makes it easier to scale and upgrade the PRM system. "We are a growing company. We have gone from 150 partners two years ago to 1,000 today, and we are still growing," he says.

Razvi considers using an ASP for CRM

to be a money-saver, at least in terms of initial rollout costs because the monthly fee is tied to the number of users. "As we scale the business and the number of partners grows, we won't be hit with a huge fee until we actually have the demand," he says. "And as a recurring cost, if it isn't working in six months, we can simply cancel."

#### **Is the ASP option for you?**

To be sure, CRM via ASPs is big. Art Williams, an analyst for Giga Information Group in Cambridge, Mass., says he's amazed by the variety among players in the fast-evolving niche. "You have a spread in customer size, and the players serving them from Agillion, which usually plays on the low end with small and midsize businesses; midrange firms like Surebridge; and companies like Bonline and Cyber Solutions at the top," he says.

There's one delineator: few ASP CRM customers are larger than a billion dollars in annual revenue. Williams says the biggest IT shops usually have the capabilities to deploy CRM, and integrating a hosted application with complex and mature back-office systems is too difficult. As such, the primary target cus-

PHOTO: STEVE SKOLL



tomers are midsize firms that don't have the staff or skills to maintain CRM internally, and those that haven't yet made a significant investment in a customized, high-end CRM system.

Speaking of investments, comparing the overall costs of implementing a CRM package on your own to outsourcing the job is a tricky endeavor. Williams says return-on-investment calculations are complex because most companies never really know what internal systems are costing them. Rather, the key comparison points are the hassle factor and deployment time frame.

Yankee Group's Kingstone agrees, noting that the market remains immature, so actual fee structures are all over the map.

"You can find some ASPs charging \$29.95 or \$50 per month per user and others charging a flat \$5,000 fee for an entry-level campaign on up to \$50,000 per month or more if you add in staffing capability," she says.

When it comes to speedy rollouts, ASPs generally win hands down. ASP CRM implementations are typically accomplished in as little as six to 12

weeks, according to Lisa McClintock, marketing products manager for ASP Interliant in Purchase, N.Y. By contrast, rolling out a traditional CRM package on your own could take several months.

Planetfeedback.com was able to get up and running with an ASP-hosted CRM application from Synchrony in only 30 days, according to Charisse Luckey, vice president of operations at Planetfeedback.com in Cincinnati. "We expected it to take a full year if we had implemented it in-house," she says. What's more, the rollout costs were lower too.

What makes a good candidate for CRM? The companies that can benefit from an ASP are those that need to roll out CRM quickly or have limited development and maintenance resources. However, renting your CRM system from an ASP won't be an ideal choice if you have extensive integration with other systems or require lots of customization, says Peter Perrera, a CRM consultant in Andover, Mass.

From a strategic standpoint, Perrera says relying on an ASP may undermine some of the potential benefits of CRM. "ASPs are more of an obstacle to creat-

ing tightly interoperable systems that are customized to a company's specific requirements," he says.

For example, such customization might include the ability to connect in real time with a production system at a manufacturing plant on the other side of the world running a nonstandard operating system such as VMS. Or it could be something as simple as conforming to geographic anomalies — customers in one region might like a first-name-basis approach to doing business, while others might prefer to be addressed more formally. Still, Perrera says he often recommends the ASP model to clients after pointing out the limitations.

Bill Martorelli, vice president of e-services and sourcing strategies at Hurwitz Group in Framingham, Mass., shares Perrera's caution. Whether using an ASP for CRM is a sound decision somewhat depends on what kind of CRM your company is seeking, he says.

"If you're just talking about a narrow focus like call center or sales force automation it may work very well, but with a broader approach to CRM, an ASP arrangement does pose challenges," he says.

Martorelli notes that elaborate, enterprisewide CRM applications that tie together all aspects of the business usually need to integrate fully with legacy systems, and this isn't the strength of the ASP model.

However, Martorelli notes that ASPs may make sense for start-ups or companies going through substantial re-engineering. "When you don't have complex integration issues, the ASP approach to CRM can work very well," he says.

*Earls is a freelance writer in Franklin, Mass. He can be reached at earls\_a@hotmail.com.*

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# SHAPE UP

## AND SHIP OUT

**Medical equipment maker upgrades to wireless to speed product distribution.**

BY TIM OUELLETTE

**W**hen hospitals and healthcare facilities order medical equipment, they don't want to hear about shipping delays. They have sick people who need the equipment ... stat.

That's why Invacare, an \$800 million medical equipment manufacturer, decided to upgrade its shipping services through improvements to its network.

Invacare put in a new warehouse management system, created a frame relay network to link corporate headquarters in Elyria, Ohio, to warehouses and distribution centers around the country, and introduced bar code and wireless technology on the warehouse floor.

The project, completed over the past three years, slashed shipping times, cut costs and gave Invacare more flexibility in managing inventory and getting the right products to the right people.

"We have been able to handle 8% more carton volume [in the distribution centers], with only a 3% increase in costs," says Carrie Messer, corporate transportation manager. Invacare would not reveal how much the project cost, but the software vendor, Optum, says projects like this can start at \$250,000 and run up to \$3 million or more.

With the new system, customers around the world can get their orders shipped the same day if they place the order by 3:30 p.m. That kind of service would have required Invacare to pay employees overtime under the old labor-intensive system, but the new network and software upgrades have essentially removed the overtime costs for clerical and manual labor that are often associated with busy distribution centers.

Previously, Invacare used paper forms and a stand-alone planning system that ran on a weekly cycle. This meant inventory was not always in the right place at the right time to get to customers. Shipping schedules could not be altered quickly to meet changing demands without extra work by the distribution staff — a major challenge for a firm that

handles 24 product lines and sells to 25,000 providers and 13,000 dealers.

Additionally, Invacare needed productivity tracking, custom labeling, cycle counting and other measures crucial to streamlining shipping operations and getting products to customers quickly. On the systems management side, the software required nightly backups, meaning the system was down for four to five hours — which is unacceptable when you have international customers looking to place orders in different time zones.

To change the way they approached the process, Invacare looked to upgrade its software and network capabilities.

On the software side, the company had turned to Oracle's suite of financial and enterprise resource planning applications at the corporate level.

"But we realized that Oracle did not have a warehouse management system," Messer says. After researching and piloting a number of software packages,

Invacare chose TradeStream from Optum in White Plains, N.Y. Optum is an Oracle partner, so the decision meshed well with Invacare's existing setup, while adding warehouse and transportation management and parcel manifesting features.

The Optum software is run off an IBM RS/6000, with Telxon 960SL RF wireless terminals throughout the warehouses. According to Messer, about 150 employees in the five warehouses across the country use the system to scan inventory locations and quantities.

As part of the process to streamline its warehousing activities, Invacare introduced bar code technology to the shipping floor and created data connections between the warehouses and the corporate network for the first time. Messer says the process took 14 months to roll out across five warehouses, which are now connected through T-1 frame relay.

Providing a physical link between remote employees and corporate headquarters also brought some cultural benefits by making employees in the warehouses feel more connected to the rest of the company. Plus, the frame relay links made it easier for remote employees to get their hands on important information that could make their jobs easier.

The new computer technology did not require a heavy investment in training, even for a staff that had not been part of the corporate computing environment. Messer estimates that training averaged only four hours per person.

The wireless terminals are linked to CompuServe's network. CompuServe is acting as Invacare's service provider and helping the company manage its bandwidth needs. The wireless technology lets users move to different locations in the warehouses when

scanning pallets of manufactured goods, Messer says.

Invacare uses Telxon's 960SL Radio Frequency wireless devices on the warehouse floor. These handheld keypad systems include a laser scanner, MS-DOS operating system and the capability to transfer data through its radio frequency transmitter or directly through an RS-232 data port. Employees can use the device to scan or punch in product code information from pallets of products ready for shipping. The scanners use special Telxon software, which also must be present on the application server, to transmit the data at up to 11M bit/sec.

For example, when an employee scans a pallet of wheelchairs coming off the assembly line, the Optum system checks where the pallet is scheduled to be delivered and whether that matches current inventory availability across the company. If there is a more immediate demand, Optum may redirect the shipment to a different location at that time — something Invacare could never do before.

This automation has improved picking accuracy, an important measurement of warehousing productivity, from 60% to 99%. It also lets Invacare save space in its warehouses by reducing the amount of inventory it must maintain, because its distribution system is now more efficient.

Invacare is not stopping there, though.

"Next we are looking at an order aggregate consolidation program," Messer says. This would let Invacare rate freight companies online to get the best deal on bulk shipments, providing another way to cut costs while managing more shipments.

*Ouellette is a freelance writer. He can be reached at tim\_free@yahoo.com*

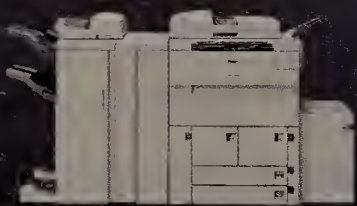
INVACARE	BEFORE UPGRADE	AFTER UPGRADE
<ul style="list-style-type: none"> <li>• Leading manufacturer of healthcare products in the nonacute care market</li> <li>• 5,000 employees</li> <li>• More than \$800 million in revenue</li> <li>• 24 product lines distributed through more than 25,000 providers and 13,000 dealers</li> <li>• 6 distribution centers, 25 manufacturing sites</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of visibility; no accountability for inventory tracking; unable to report on labor productivity.</li> <li>• Inefficient order allocation meant 3 to 4 hours of extra clerical work per day.</li> <li>• Unable to provide tailored logistics services; unable to handle multiple configurations of products.</li> <li>• High transactions volume with strained manual operations (\$1.8 million to \$2 million in orders per day).</li> <li>• Needed to execute more quickly to improve customer responsiveness and reduce order cycle times.</li> </ul>	<ul style="list-style-type: none"> <li>• Real-time order prioritization and labor productivity analysis.</li> <li>• Improved efficiency: Cost per carton decreased by more than 9% while volumes increased without additional head count.</li> <li>• Configurable value-added services and fulfillment processes such as customer labeling matched to customer order.</li> <li>• Automated processes have improved picking accuracy from 60% to 99%.</li> <li>• Systems scale easily for high order volumes with reduced order cycle times; Invacare ships up to \$5.4 million per day with a 24-hour delivery guarantee.</li> </ul>



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Landing a jet fighter on the pitch-black, heaving deck of an aircraft carrier in the middle of a storm requires great skill, nerves of steel and superb instrumentation. Losing your instrument landing system as you cross the stern is a sure ticket to a major crash.

A big crash is exactly what happened when we put Shomiti Systems' Surveyor 3.1 to the test. The monitoring software and Explorer network probe have great potential, and we wanted to give them a thumbs up, but we found that the current release is not stable and lacks some critical features. We recommend waiting for the next release.

If you peek inside the cockpit of an F-14 Navy fighter aircraft, you'll see a complex set of gauges, switches and displays — far more than you would find inside a small, private aircraft. That high-tech cockpit is the type of environment Shomiti has attempted to provide for network analysts with demanding monitoring needs. The Shomiti Explorer probe and Surveyor software work together as an advanced analyzer and monitor for 10/100 Ethernet, Gigabit Ethernet and token-ring networks. Although be advised, just like the F-14 fighter, this is complicated and expensive equipment and is best deployed on critical network segments.

### Surveying the net

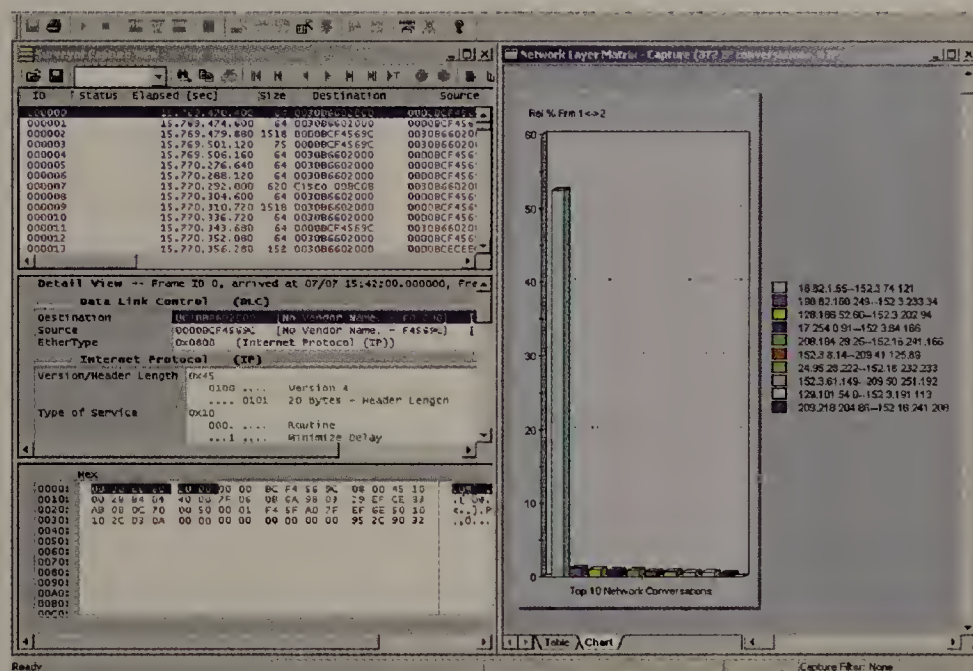
Surveyor 3.1 consists of a hardware component (the Explorer probe) and Surveyor, a software application. Companies can opt to replace the Explorer probe with a Windows NT system with a Network Driver Interface Specification-compliant network interface card (NIC). We tested both configurations.

Upon initialization, Surveyor lets

operators scan the network for remote probes. Detected probes are displayed in a convenient resource browser on the left side of the main window. Each probe's NICs are shown as separate resources and may be activated individually.

The Alarm Browser is located directly below the list of probes. If you are using the Expert alarm plug-in, you can create a series of alarm definitions using the Alarm Browser and save them for future use. To activate an alarm, simply click on the probe and interface where you wish to assign the alarm to, and drag it down to the Alarm Browser window. Drop it on the alarm definition, and it's active.

We found this feature to be useful and took frequent advantage of it. The Data Link Layer alarm for Overload Utilization Percentage let us specify a maximum Ethernet utilization threshold. If the threshold was exceeded an alarm was immediately generated. We also used the Application Layer alarm to track down a misbehaving workstation.



Surveyor can scan the network for remote probes and displays them in a browser (left). Statistics for the selected probe are displayed in graphical form (right).

When an alarm is triggered, network administrators can be notified by a beep and a message on the console, a call to an alphanumeric pager or an e-mail message. Given that Surveyor is likely to be used in unattended mode, e-mail notification is critical. On the downside, the product only supports Messaging API (MAPI) mail. Having no support for Simple Mail Transfer Protocol-based e-mail was a serious omission, because many users are likely to have extensive notification lists on other mail systems. Shomiti officials say they are considering adding support for non-MAPI e-mail systems in an upcoming release.

### Catch that packet

Capturing data at wire speed is where the Explorer probe excelled. We tossed hundreds of megabits per second of traffic at the probe, and it never dropped a packet. With a 256M-byte buffer, there's plenty of

room for captured data, even at extremely high bandwidth.

Surveyor's filters are one of its strongest features. Users can define capture and display filters that make sorting the signal from the noise easy. Constructing a filter is a snap: Select the field to filter with — source address, destination address, port number — then right-click the mouse and use the "copy to filter" feature to automatically construct the filter. This beats plugging in hexadecimal numbers manually.

Shomiti provides an outstanding quality-of-service (QoS) protocol-decoding plug-in with this release. Using the plug-in, which is an optional module, we monitored H.323 and Q.931 traffic, examined maximum and minimum jitter statistics, and counted dropped packets.

Surveyor has one of the best QoS decoding engines we've seen.

Unfortunately, we found Surveyor and the Explorer probe to be highly unstable in this release. We identified several bugs in the filtering engine related to Windows 2000, and we experienced repeated, and unexplained, losses of connectivity with the Explorer probe and our NT-based probe. We spent several days working with Shomiti's technical support team to resolve the issues, most of which seemed to be related to Win 2000. Shomiti's engineers assured us that they had fixed most of the bugs we found, and that the next release would take care of the problems. We'll withhold our judgment until after we test the next release.

### Installation and documentation

Surveyor was a breeze to install. A mistake on our end had the program failing to detect a second NIC in our

# Crash landing

**Shomiti's Surveyor Version 3.1  
not yet ready for takeoff.**

BY BOB CURRIER,  
NETWORK WORLD GLOBAL TEST ALLIANCE

## NetResults

### Shomiti Systems' Surveyor 3.1

**RATING: 6.40** **COMPANY:** Shomiti Systems, (888) 746-6484, [www.shomiti.com](http://www.shomiti.com) **COST:** Surveyor software, \$1,495; Multi-QoS Plug-in, \$3,500; Expert Plug-in, \$2,495; Gigabit Explorer hardware (full-duplex), \$18,995. **PROS:** True wire-speed capture using a dedicated probe; excellent quality-of-service decoding; quick and easy filter programming. **CONS:** Unstable on Windows 2000; poor communication between Explorer probe and console; supports only MAPI e-mail.

	Stability 30%	Features 30%	Performance 20%	Installation 10%	Documentation 10%	Total score
Surveyor 3.1	4	6	7	10	10	6.40

Individual category scores are based on a scale of 1 to 10. Percentages are the weight given each category in determining the total score. Scoring key: 10 — Can't be better; 9-8 — Excellent; 7 — Very good; 6-5 — Average; 4-2 — Needs improvement; 1 — Not supported or doesn't work.



remote agent, but a quick perusal of the documentation and a change to the configuration file quickly solved that problem. We wish more applications went in this easily.

The documentation supplied by

Shomiti is well-written, superbly illustrated and easy to understand. A quick-start booklet was provided, and we found that we rarely had to refer to the extensive user's guide. The few times that we had to dig through the guide, we had no

problems finding the answers to our questions. Kudos to Shomiti for supplying printed documentation. Manuals on CD-ROM are becoming the norm — we find printed documentation much easier to use, particularly in the field.

## How We Did It

We installed Shomiti's Surveyor Version 3.1 on a Toshiba Satellite 1625CDT laptop running Windows 98, a Dell Optiplex GX-1 running Windows 2000 and a Dell Optiplex GX-1 running Windows NT Workstation 4.0. All systems had at least 192M bytes of RAM, the minimal amount required by Surveyor. We tested the remote diagnostic abilities of Surveyor using Shomiti's hardware-based Gigabit Ethernet probe and a Hewlett-Packard Pavilion with a NetGear Gigabit network interface card. We deployed the probes on the primary Internet feed of our 40,000-node enterprise network using a Shomiti Systems optical splitter.

### Bottom line

Surveyor and the Explorer probe have great potential. We tried to like them, but the random crashes, inconsistencies between operating systems and lack of support for non-MAPI e-mail keep us from recommending the current release. Hold off on purchasing this product until an updated version is released. If Shomiti can address the problems we found, Surveyor has the potential to be an extremely useful tool for enterprise network managers.

*Currier is director of data communications at Duke University in Durham, N.C., and the 1998 Grand Prize winner in the Excellence in Campus Networking competition sponsored by CAUSE, a user group for computer professionals in higher education. He can be reached at bob@bobcurrier.com.*

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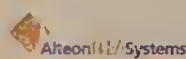


*Currier is also a member of the Network World Global Test Alliance, a cooperative of the premier reviewers in the network industry, each bringing to bear years of practical experience on every review. For more Test Alliance information, including what it takes to become a member, go to [www.nwfusion.com/alliance](http://www.nwfusion.com/alliance).*

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# Management Strategies

Career Development, Project Management, Business Justification

## Flying solo

**Do you have what it takes to be an independent network consultant? Take our quiz to find out.**

BY DAVID RATHS

**It's** 7:30 on a Friday night. Instead of being home with the family or out with friends, you're still in your cubicle troubleshooting a network problem. Suddenly the chorus from that old song "Take This Job and Shove It!" runs through your head. I don't need this, you think. I could go out on my own. Become a consultant. Set my own hours. But could you?

For network professionals who are considering leaving the corporate world behind, there are several important issues to consider, says John Kador, the author of *Internet Jobs: The Complete Guide for Finding the Hottest Jobs on the Internet*. Ask yourself how much responsibility you're willing to take for your life. "When we work for an organization, we are trained to give up autonomy for certain significant benefits — a regular paycheck, someone else to think about the next paycheck, health insurance . . .," says Kador. You can regain that autonomy, but you have to take responsibility for time management, marketing, retirement and insurance issues.

If you're thinking about going solo because you want to wear sneakers and shave only on Tuesdays and Thursdays, remember that at client sites, you'll still be required to be ultraprofessional, says David King, director of architecture and strategy for Enterprise Systems Consulting in Irvine, Calif. "You must demonstrate a solid work ethic, including making yourself available by cell phone, pager and home e-mail," he says.

You'll also be expected to look and behave professionally at all times. "You will be looked at as the expert, so you should appear to be just that, in every way," King says. Apparent success is part of that perception, so King suggests dressing as well or better than your client.



Likewise, if you find it difficult to get along with co-workers, you may also have trouble as a consultant. Having a positive attitude and being seen as a team player are crucial attributes, King maintains. You must always speak well of previous and current clients, whatever the real situation may be.

"Successful consultants are always selling themselves by their actions and their attitudes as much as their deliverables," King says. Don't walk around with a silly grin on your face but try to always look pleasant and approachable. "Be the person who is wanted on every team," he says, "not only because of your knowledge and skills, but also because you are good to have around."

So how can you tell if you're the consultant type? Honestly assess how much personal responsibility you can handle. Although many people decide to work for themselves, others get dragged into life-changing events, says Kador, who became a freelance writer when he was fired from an editorial job. "If you're looking for certainty, there isn't any," he adds. "It's a leap of

faith, but we don't have to leap blindly."

To help you decide if you're cut out to be a free agent, we've come up with a quick quiz with help from a handful of IT consultants. Rate yourself on a scale of 1 to 5 for each of the following questions:

1. Are you a compulsive problem solver?
2. Do you have a network of associates that you can turn to for business, support and advice? If not, are you ready to work to create such a network?
3. Do you feel your entrepreneurial or problem-solving skills are unappreciated and underutilized in your current corporate environment?
4. Do you have good interpersonal skills to complement your technical skills, including the ability to facilitate technology for nontechnical people?

5. Are you willing to do grunt work such as copying, stapling and making coffee, as well as the strategic things like planning a client's WAN?

6. Can you see yourself spending a considerable amount of time as a salesperson for your company? Are you outgoing enough to do cold calling on potential clients?

7. Do you feel that you're good at remaining calm and level-headed in the face of tense interpersonal office politics?

8. Have you thought about how ready you are to deal with the operational side of the business: paying taxes, setting up insurance and retirement plans, and creating marketing collateral such as business cards?

9. Have you started to formulate a basic business plan — how much business you want and what type of business you'd go after?

10. Is your family prepared

to support you financially and emotionally in going freelance?

Add up your score. If your total is:

**43 — 50:** You're a natural. What are you waiting for? Start putting that business plan on paper and planning when you'll give notice.

**35 — 42:** You may be a contender. You have strong independent leanings but may need to hone your ideas and skills before breaking away.

**25 — 34:** Think about it some more. If you're unhappy in your current position, consider visiting a career counselor to help clarify your strengths and determine if you have enough entrepreneurial interest to strike out on your own. Maybe you just need to change jobs.

**Below 25:** Fuhgedaboutit. You probably don't have enough of a freelance mentality. Stick with the corporate gravy train for now.

Raths is a freelance writer in Kailua, Hawaii. He can be reached at [draths@hawaii.rr.com](mailto:draths@hawaii.rr.com).

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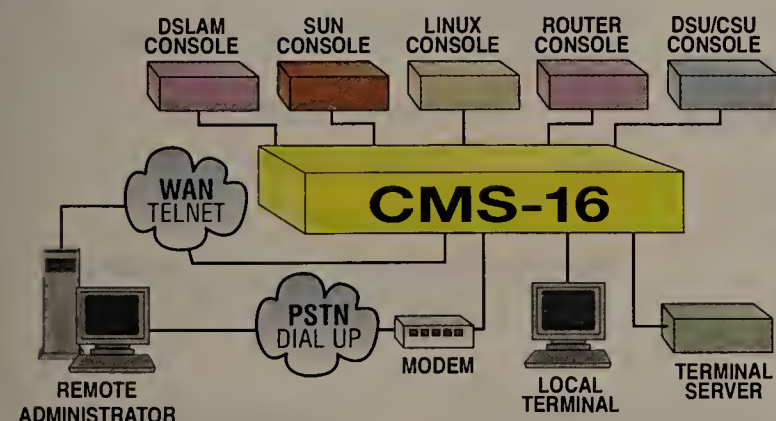
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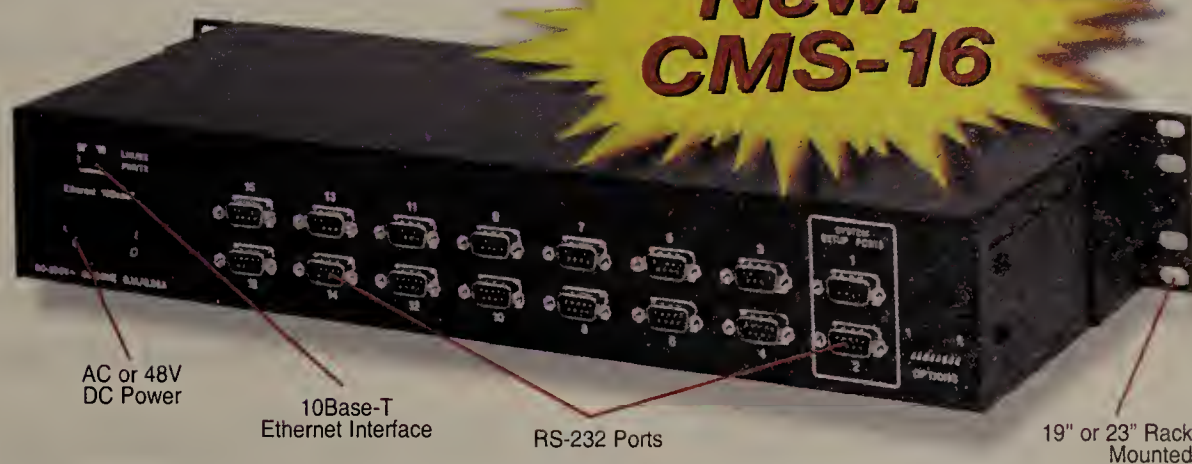
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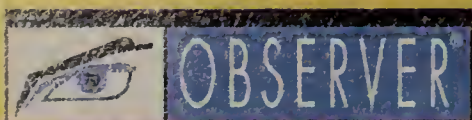
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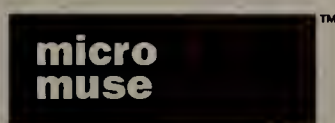


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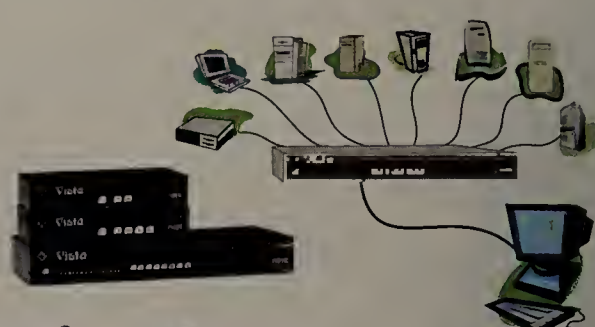
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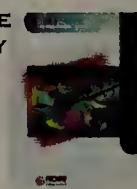


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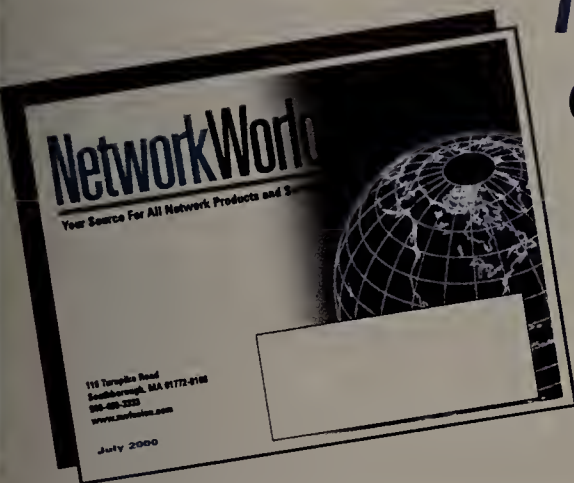
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Script Writer wanted by New York-based Software Development Co. to write computer scripts. Must have Bach in Comp Sci, Elec Engg or Math & 2 yr exp in job offd.

Respond to: HR Dept, Imagine Software, Inc, 400 Madison Avenue, 21st fl, New York, NY 10017.

Project Manager sought by computer consulting firm in NYC. Plan, direct & coord. computer development projects. Direct design enhancement, implementation & testing of data driven web applications. Org. and manage staff, delegate & review assignmts. Use JDBC, Oracle and Unix. Resumes to HR Dept., Boyle Software, 42W 24th St., NY, NY 10010.

Software Installation Manager wanted by Co involved in s/ware solutions for the banking industry in Miami, FL. Must have Bach in Business Admin, Computer Info Systems & 2 yrs exp in banking comp systems mgmt. Respond to: Cluadia Suarez, Americas Software Corp, 550 Brickell Ave, Ste 503, Miami, FL 33131. Refer to code RES001.

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MIS Manager wanted by Spanish Media & Entertainment Co in Miami, FL. Must have Bach or foreign degree equiv in Comp Info Systems & 1 yr managerial exp in accounting software industry.

Respond to: Elizabeth Colon, TI II, LLC, 201 South Biscayne Blvd, Ste 1800, Miami, FL 33131.

Software Engineer: plan, design, code, test, document & implement e-commerce strategies & web sites. Formulate & define specifications for software programming applications. Train & direct other software systems programmers. Req. MS or equiv. in CS, CIS, MIS or related field w proficiency in Oracle, Java & Cold Fusion. \$68k/yr, 40 hr/wk, 8-5, contact Dwight L. Baker at Rare Medium, Inc. 1165 Sanctuary Pkwy. Ste. 300, Alpharetta, GA 30004. Fax: 770-576-5391.

**WEB DEVELOPER** needed by Iselin, New Jersey Business/Software Development systems integration consulting firm. Must have M.S. degree in Computer Science and 1 year experience in web application development and server side scripting using CGI, ASP, SQL, Client-side scripting, COM objects, object brokering systems, HTML, HTTP, TCP/IP, Script, Java and Pearl for e-commerce projects. Send resume to Richard Higgin, Altro Solutions, Inc., 517 Route 1 South, Suite 5600, Iselin, NJ 08830.

Engineers/Programmers/Analysts/Consultants needed. Connecticut based company has several senior and entry-level positions available for qualified candidates possessing MS/BS or equivalent and or relevant work experience. Work to design, develop and maintain various software applications. Must be willing to travel and relocate as required.

Fax resume to PSI Data Systems HR Dept. 800-804-3792.

**Software Engineer**  
Design and develop client server business applications, including design database tables & front-end screens and tune database & application for optimal performance. Must have experience using Visual Basic, SQL Server, MS Access and Windows 95/NT. Req. 2 yrs. exp. in job offered or 2 yrs. exp. as a Software Developer. MS in Computer Science, Engg, Math or related field. Salary is \$80,000/yr, 40 hrs/wk, 8:00 to 5:00 p.m. Send two copies of resume to Job Order #2002578, Labor Exchange Office, 19 Staniford St., 1st floor, Boston, MA 02114.

IT firm seeks Director of Web Development w/Java, Perl, Apache, client-server & multi-tier architecture experience to create & support event mgmt. & corporate partnering. Master's degree in Computer Science & 1 yr. prior exp. or rldt. exp. as Programmer/Analyst. Resumes: Group Intelligence Inc., 30 Broad St., NYC 10004.

**Computer Professionals** (Multiple Openings) W/Exp. in one of the following Oracle, HTML, SQL Server, Visual Basic, MTS, MSMQ Crystal Reports, MS-Access, Active-X, Windows Apply to Core Technology Partners Inc., 1506 Providence Highway, Suite # 31 Norwood, MA 02062

**PROGRAMMER ANALYST--** Hirani Engineering & Land Surveying, P.C. is looking for a programmer analyst for its Floral Park location to dev computer programs to meet user needs. Must have exp in ORACLE Developer 2000 & Visual Basic 5.0. & bachelor's in Acc., Business Admin., Computer Science, or a related discipline & 1 yr exp in the position offered or in a programmer or systems analyst position. Send resume to: Mr. Jitendra Hirani, Hirani Engineering & Land Surveying, P.C., 199 Jericho Turnpike, Suite LL5, Floral Park, NY 11001.

Prominent Telecom Firm seeks Sr Systems Analyst. Position requires degree in Comp. Science or related field and 2 yrs experience systems integration and design including troubleshooting routed Cisco networks. Must be proficient in Hardware and Software system integration, EMC, Windows NT, HP-UX, SCO Open Server, MS Clustering, MS Exchange Server, Solaris, Compaq Rack Mounted Server buildup, Network Associates Sniffer Analysis tools, HP Openview, Cisco Works, and Linux 85K. Send resume immediately to 770-849-3054.



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**Software Engineer -Technical Architect** (Atlanta, GA) - Research, analyze, design and develop architecture service components and systems to support object oriented software application development. Program and unit test architecture components in UNIX environment using standard OO design patterns and either C++ or Java. Analyze application designs and code to determine feasibility and compliance with design and development standards. Provide on-going support of technical architecture system and software applications. Bachelors Degree or equivalent in Computer Science or related field. Two years experience in job offered or 2 years experience as a Software Engineer. Mentioned experience must include two years each in the following: object oriented design, analysis and programming using standard OO design patterns and either C++ or Java, and UNIX development. Salary: \$78,700 year. Must have proof of legal authority to work in the U.S. Submit resume to: Employment Coordinator, S 1 Corporation, REF: SETA:ATL, 3390 Peachtree Road, N.E., St. 1700, Atlanta, GA 30326 or by Fax: (404) 812-6766

**SOFTWARE ENGINEER:** Database Administration, analysis, design and development in client/server architecture using Oracle database and Oracle software development tools. Analysis, design and development of software projects using Unix operating systems and windows and software developing languages like C and Pro\*C. Design and development of software projects involving GUI front-end tools like Forms 4.5, Reports 2.5. The job duties are Database administration, Systems Analysis, Design, Development, Testing and Implementation of Software projects in client/server architecture environment. Adherence to Software development process standards and procedures. Provide consultancy to the software development teams and firms and play vital role in decision making for application and development level parameters. Requires Masters in Sciences or Computers with no experience required. 40 hours per week at \$ 72,000 per year. Please send 2 copies of resume to Case # 20002601, Labor Exchange Office, 19 Staniford Street, 1st Fl., Boston, MA 02114

**SOFTWARE ENGINEER:** Ability in analysis and design of software that controls SCANOPTICS 9000 series scanning machines and develop code using scangen software development tool. Ability in analysis, design and development of software projects involving GUI front-end tools like PowerBuilder 4.0, Forms 4.5, Reports 2.5. Design and development of Software projects using Unix and Windows operating system. The job duties are analysis, design and develop and comprehensive system for providing customer Management Information services. This has to be developed using variety of tools like ORACLE 7, RDBMS and SCANGEN 3.1. Requires Masters in Engineering with no experience required. 40 hours per week at \$ 72,500 per year. Please send 2 copies of resume to Case # 200022486, Labor Exchange Office, 19 Staniford Street, 1st Fl., Boston, MA 02114

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Provide web based billing application for customer support/tracking, invoice and credit/adjustment creation, correspondence and reporting using Java, JDBC, HTML, Javascript, and PL/SQL. Integration, implementation and customization of web based E-Commerce uni-billing and customer tracking system for various services using Java, JFC, JDBC, CORBA, and PL/SQL built on Oracle 8.i. Must have at least a BS or BE degree in Electronics Engineering or CS or related field and 2 yrs. of exp. in the above position or 2 yrs. exp. as a Software Engineer or a related position w/ability to use Java, JDBC, HTML, Javascript, and PL/SQL. 40.0 hr/wk. \$63,450/Yr., 8:00 AM -5:00 PM. Applicants send cover letter and resume to: Nag Ramachandran, Ramsoft, Inc., 6030 Dawson Blvd., Suite E, Norcross, GA 30093.

**DATABASE ADMINISTRATOR-** In a consulting environment installs Oracle RDBMS. Design, create & maintain & tune database, migrate/upgrade database on Oracle 7. x & higher versions utilizing VAX/VMS tools & architecture. Create backup & recovery schemes. Ensure the integrity & access security. Assist applications developers in troubleshooting problems encountered on multiple platforms. Requires a Master's degree in a Quantitative Discipline + 1 yr exp. A degree in any of the following would be acceptable: Computer Science, Mathematics, Physics, Electrical, Electronic or Computer Engineering, MS. 40hr/wk. 9am-6pm. \$70k/yr. Jobsite/Intw: Atlanta, GA. Must have proof of legal authority to work in the US. Send 2 resumes & ad to: North Metro, Job Order# GA 6736036, 2943 N. Druid Hills Rd. Atlanta, GA 30329 or nearest DOL Labor Field Service Office.

**Computer Programmer-Boca Raton, FL** &/or various other corporate locations. 40 hrs./week, 9a.m.-6p.m., \$45,000/yr. Position requires B.S. in Engineering & 1 yr & 11 mos exp. in job offered. Duties include: Uses Informix-4GL programming language to analyze, design, code, test and implement healthcare staffing applications and reports according to specifications. The programming environment is strictly AIX UNIX. Employs VI editor, SCCS, make, UNIX commands to accomplish tasks. Writes SQL statements to query, update, delete and add data to RDBMS. Maintains and enhances existing software applications/reports. Interviews users to document specifications. Must have knowledge of the following programs, languages & packages: UNIX, INFORMIX 5.x, 7.x, Oracle 7.1, Informix 4GL, ESQ/C, Powerbuilder (3.0). Send resume to the Dept. of Labor/Workforce Program Support, P.O. Box 10869, Tallahassee, FL 32302, JOFL2120803.

Two positions available in Vermont for Software engineers. Duties include the following: design and develop software packages for multi-axis CNC grinding machines including 3-D simulation and graphical interface; write C and C++ programs for CAD/CAM software for five-axis CNC grinding center; design and develop GUI and windows programming for CNC control systems; design and develop specific tool paths to produce customer design pieces. Requirements: BA or equivalent in applied mathematics, computer science or electrical engineering; two years experience in C and C++ programming; two years experience in developing CAD/CAM software for 5-axis CNC machinery; one course in analytic geometry or one year experience using analytic geometry. \$28.03/hour. Send resumes to: Job Order No. 628734, Jobs and Training Division, VT Department of Employment and Training, P.O. Box 488, Montpelier, VT 05601-0488.

**SOFTWARE ENGINEER** to provide on-site consultancy in software systems design and analysis of client's system requirements, system integration, networking and system administration using Oracle as RDBMS, Shell Scripting, AWK and SED on Solaris and SCO UNIX and Oracle Reports in Windows environment. Require: Masters (or equivalent) in Computer Science/System Management/Electronics Engineering and three years experience in the job offered, or any experience providing experience in described duties. (Bachelors with five years experience may be substituted for Masters and three years experience.) 40% travel required to customer sites within the United States. Salary: \$66,000 per year, 8am to 5pm, M-F. Apply with resume to: President, Business Oriented Software Solutions, Inc., 3040 Holcomb Bridge Rd., Suite D-2, Norcross, GA 30071 (Ref: NB00).

**Unix Systems Administrator/Integrator** (Atlanta, GA) Responsible for installation, maintenance, modification and support of UNIX based operating systems, telecommunications, databases and specialized application software. Daily duties will include monitoring and management of applications utilizing the following protocols: SMTP, TCP/IP, FTP, TELNET, SNA and SNMP. Must have Bachelor of Science degree, or foreign degree equivalent, in Computer Science, Electrical Engineering or related field & 3 years experience in job offered or 3 years experience as a UNIX System Administrator. Mentioned experience must include three years each in SMTP, TCP/IP, FTP, TELNET, SNA and SNMP and ability to demonstrate proficiency. Salary: \$76,600. Must have proof of legal authority to work in the U.S. Submit resume to: Employment Coordinator, S1 Corporation, REF: UNIXATL, 3390 Peachtree Road, N.E., St. 1700, Atlanta, GA 30326 or by Fax: (404) 812-6766

**SAP Consultant.** Job location: Florham Park, NJ. Duties: Design, develop, implement & maintain various interactive soft. prgs. using SAP (System Applications and Products) R/3, SAPScript, Zebra, Oracle, Visual Basic, Developer 2000 & PL/SQL on Windows NT & UNIX platforms. Perform existing business process studies in materials mgmt., production planning, collection of master data & configuration exercises using SAP. Perform report writing & dialog programming for clients. Requires: M.S. in Eng., Comp. Sci. or a closely related field plus 2 yrs exp. in the job offered or 2 yrs exp. as a Soft./Systems Engineer. Exp. which may have been obtained concurrently, must include; 1 yr. exp. utilizing SAP R/3, Developer 2000, Oracle and PL/SQL on Windows NT and Unix platforms. In lieu of M.S., will accept a Bachelor's degree plus 5 yrs of progressive exp. Send resume to Carmen Strickland, marchFIRST, Inc., 311 S. Wacker Dr., Suite 3500, Chicago, IL 60606.

**Consultant/Sr. Software Eng.** Job location: Atlanta, GA. Duties: Design, develop, analyze & implement comp. systems for various clients. Develop web based systems using Oracle 8.0, PL/SQL, Oracle Forms 5.0, SqlPlus on Windows NT and Solaris 2.5 platforms. Requires: M.S. or foreign equiv. in Comp. Sci./Info. Systems, Eng. or related field plus 3 yrs exp. in the job offered or 3 yrs exp. as a Programmer/Systems Analyst. Exp. which may have been obtained concurrently, must include: 1 yr exp. using PL/SQL and SqlPlus on Windows NT and Solaris 2.5 platforms. In lieu of M.S. or foreign equiv., will accept a Bachelor's degree or foreign equiv. plus 5 yrs of progressive exp. Send resume to Susan Rubeor, marchFIRST, Inc., 311 S. Wacker Dr., Suite 3500, Chicago, IL 60606.

**Software Engineer:** Nashua, NH Dsgn & dvlp s/ware apps on Sun/Solaris, PC/Win, VAX/VMS platforms using C, C++, X-Win, Motif, OpenGL, UNIFY prgm languages. Dvlp dbase modules. Involve in spec studies, coding, testing, documentation & maintenance of s/ware projects. Also involve in project mgmt activities like specs, estimation, proposal generation, project execution, tracking & monitoring. Coord installation of s/ware systm. Analyze s/ware reqmts to determine feasibility of dsgn within time & cost constraints. Reqs: Master in Comp Engg or Comp Sci or Math or Sci or Engg or equiv +3 yrs exp in job off. Or Bach in specified fields & 5 yrs progressive exp in job duties listed. \$72,480/yr, 9a-5:30p, 40 hrs/wk. Send 2 copies of resumes/ltrs of appcls to: JO# 2000-349, PO Box 989, Concord, NH 03302-0989.

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**Software Analysts.** Design, develop, code, test & debug software applications using Java. Req. BS in comp. sci, engg, or related tech. field. Resumes to: J Cappola, E-Certify, 3025 Windward Plaza, Suite 200, Alpharetta, GA 30005.

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**SOFTWARE ENGINEER:** Ability in database administration, analysis design and development in client/server architecture using different databases MS-SQL Server, Ms-Access, Oracle and Visual Basic software. Ability in analysis, Experience in design and development of software projects involving GUI front-end tools like Visual Basic 6.0, Crystal Reports 4.5, forms 4.5 and Reports 2.5 under Windows NT operating system. Design and development of E-commerce/Internet technologies using ASP, VB Script, Java Script. The job duties are to perform analysis on the existing manual systems and design the architecture. Involve in database administration and develop GUI applications, Web applications using advanced technologies. Requires Masters in Computer Applications with no experience required. 40 hours per week at \$ 65,000 per year. Please send 2 copies of resume to Case # 20002989, Labor Exchange Office, 19 Staniford Street, 1st Fl., Boston, MA 02114

**PRINCIPAL NETWORK ENGINEER** - 40 hours per week, job located in Tamarac, FL, work hours: 8:00 am-4:30 pm. Responsibilities include pre-sales support of our three primary product lines: Time Division Multiplexing, Wireline Access Products and Asynchronous Transmission Mode (ATM) switching. A thorough knowledge of these technologies and their associated signaling schemes coupled with an in-depth knowledge of complex industry standards are required. The preparation of technical presentation material and effective delivery of this material to highly educated engineering personnel from prospective companies is a must. B.S. degree or equivalent in electrical engineering and 4 years experience. Must have knowledge of G.703, G.704, G.732 and G.736 wideband transmission electrical and physical interfaces; broadband standards such as PDH, SDH, ATM, and ISDN; Local Area Networking standards such as Ethernet, Token Ring and FDDI; LAN networking protocols such as TCP/IP, IPX, SR, and SRT; ATM Forum, ANSI and ITU standards for narrowband and broadband transmission; FUNI and Frame Transport technologies such as Frame Relay and X.25; analog transmission line characteristics and transmission protocols; Digital Channel Interfaces such as Synchronous, Asynchronous, Isochronous, Transition Encoded, TIA-232, TIA-422/423, MIL STD-188-114A, V.24, V.11, V.28 and V.36, Voice Compression Technologies and Techniques such as ADPCM, CELP, echo cancellation, silence suppression (ITU-T and ATM Forum VTOA); Video Compression and Networking standards such as Motion JPEG, MPEG-2, and H.320; wireline transmission technologies such as Data Over Voice, DSL, HDSL, ADSL, CSU/DSU, and V.34 analog modem; and network management standards and protocols such as SNMP, CMIP, TMN and HP Open View. Send resume to: Department of Labor, Bureau of Workforce Program Support, P.O. Box 10869, Tallahassee, FL 32302. Job Order# FL-2110922. EOE

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**Enum,**  
continued from page 1

Scott Bradner, director of the IETF's transport area. "Enum puts this under the control of the corporate phone person, not the phone company."

Enum is a simple service that functions like a large database. When an end user types a telephone number into an Enum-enabled application, he pulls up what's called a Naming Authority Pointer record that lists all the resources associated with that number, including the domain name.

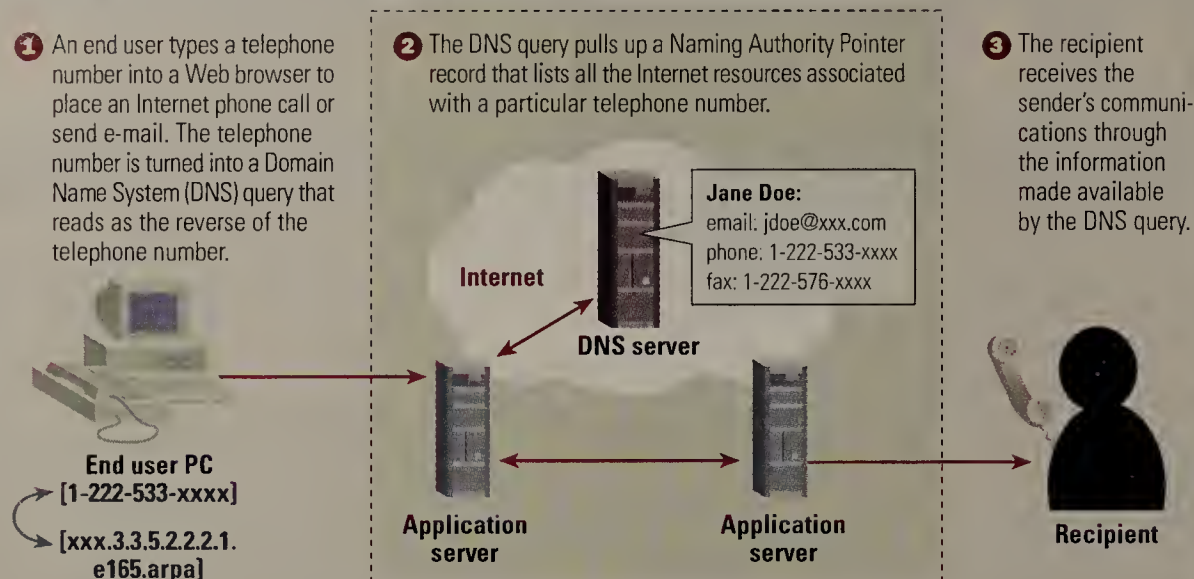
Enum doesn't change the international telephone numbering plan — which uses globally unique E.164 numbers — or how individual countries with the oversight of the International Telecommunication Union administer these numbers. Instead, Enum lets an end user or application see what Internet resources are available for a particular telephone number. Enum is designed for use in the Internet and in private telephone numbering systems and IP networks.

On the Internet, businesses and consumers will have to pay to register their phone numbers for Enum services. The businesses and consumers can then specify their preferences for receiving incoming messages to that number, whether as live calls, voice mails, e-mails or faxes.

VeriSign sees a potential opportunity to serve as the central registry for Enum, says Pat Conley, a business development

## Enum explained

Enum maps information about Internet resources to telephone numbers.



executive.

That's why VeriSign and Telocity are hosting a free test bed for Enum developers that will run for six months starting in December.

"There are 250 million telephones in the U.S. If 1% of those numbers were registered as Enum records, that would be 2.5 million registrations," Conley says. "We think [Enum] could be a big opportunity around the globe."

Enum developers say the technology will be useful in an array of corporate applications, including e-mail, instant messaging and voice-over-IP services.

"Enum would be supported in Web browsers, e-mail clients and voice mail systems for unified messaging scenarios," says Patrik Faltstrom, author of the Enum specification and a Cisco

engineer. "You could have a system that, at the voice prompt, records a message and sends it on as e-mail."

In conjunction with another IETF protocol — Voice Profile for Internet Messaging — Enum would let carrier and enterprise voice mail servers locate each other over the 'Net and exchange messages. Enum also would let Internet-aware fax machines send documents to each other and to unified messaging systems.

But Enum shows the most promise in making it simple to place telephone calls over the Internet.

"What Enum does is allow [voice-over-IP] proxies and gatekeepers to find each other with no other information than the phone number," says Richard Shockey, co-chair of the IETF's

Telephone Number Mapping group and a senior technical industry liaison with NeuStar, the North American telephone numbering authority. "That's always been the biggest problem in [voice-over-IP] services."

This innovation promises big savings for corporations, which typically spend 40% of their long-distance bills on internal communications, Shockey says.

"Voice over IP. Universal messaging. Fax. These are major enterprise applications that can be enabled more efficiently over IP networks vs. switched networks," Shockey adds. "Enum leverages the enormous investment that corporations have made in their IP backbones and VPNs."

One application that already supports Enum is Bind 9, the latest version of the open source

software that powers most DNS servers. Bind 9 supports all the resource record types required by Enum, says David Conrad, chief technology officer at Nominum, which wrote Bind 9.

Although the Enum protocol is considered solid, it faces a slew of administrative and regulatory hurdles before it can be deployed in the U.S. One challenge was resolved one week ago, when the Internet Assigned Numbers Authority set aside a new domain — E.164.arpa — for the storage of E.164 numbers.

The next question is: Which federal agency will oversee Enum registrations? Telephone numbering administration is handled by the Federal Communications Commission, while the Department of Commerce oversees DNS. Some regulatory agency will need to oversee Enum subdelegations.

Another sticky issue is the ownership and portability of Enum registrations. Businesses and consumers don't own their telephone numbers, but they do own their domain names and can move them from one ISP to another.

"The technology is pretty much there. It's just a matter of setting up the administrative infrastructure and procedures you need to make it work," says Penn Pfautz, an AT&T manager and a participant of the IETF Enum effort. ■

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**Linux,**  
continued from page 8

big week of Linux announcements at NetWorld+Interop. Red Hat and a crowd of Linux vendors showed products intended to boost the fault-tolerance and security of Linux and open source software and hardware in corporate networks.

Among the products launched last week were:

- The Red Hat Network automatic updating service from Red Hat, for applying the large number of Linux patches and fixes generated every month.

- Rremote server access software from Tridia that allows remote access to Linux servers.

- Configuration software for Apache Web servers from

Chilliware.

- Compact, rack-mounted, fault-tolerant Web servers from BSDi and Penguin Computing.

To make it easier for administrators to keep networks up-to-date with the latest patches, Red Hat has started the Red Hat Network, a subscription-based service that lets administrators automatically download and receive Linux changes and enhancements from Red Hat's site.

"We can take those patches and apply them to over 1,400 workstations," says Lloyd Hamm, senior vice president and chief information officer for Eastern Bank in Lynn, Mass.

Hamm says while automatic software updating has been fashionable for years in Windows NT and NetWare networks, the number of patches, enhance-



BSDi's iXtreme server is a dual-processor server with hot-swappable disk drives for space-limited environments.

ments and fixes the Linux community generates is more than those environments, and more difficult to keep up with.

Hamm is developing open source, Web-enabled applications for customers that let them dial in and get their bank balances.

Red Hat's software update and subscriber databases use Novell's eDirectory and are tied together using Novell's DirXML metadirectory product.

As for easing the management and installation of Linux

servers, Chilliware introduced Mohawk, software that configures Apache Web servers, reducing configuration time by more than 50%, the firm claims. Mohawk is available now for \$79.

Tridia also unveiled TridiaVNC, which lets administrators manage Linux servers remotely. The software, which will ship by year-end, can control Windows, Unix or Macintosh servers. TridiaVNC is freely downloaded from [www.tridia.vnc.com](http://www.tridia.vnc.com).

BSDi and Penguin Comput-

ing are following the trend Windows NT, Unix and NetWare servers and software took toward greater fault tolerance, availability and security by launching several rack-mounted Web servers. Penguin Computing's RelionT 120 servers are dual-processor, 1.75-inch-high servers, designed for environments where space is at a premium. Each Pentium III server has 2G bytes of memory and two hot-swappable drives. They will be available mid-October.

BSDi also introduced dual-processor servers with hot-swappable hard drives. The iXtreme servers use Pentium processors and have a capacity of 72G bytes. They will be available next month starting at \$1,300. ■



## E-comm, continued from page 1

bought online he returned to the stores, a strategy that means online buyers get faster credit refunds. Online sites also help bring foot traffic — and more sales — to the stores.

But not all retail chains find meshing the 'Net with brick-and-mortar to be entirely easy. Take \$4 billion retail discount chain Ames, with 476 discount stores, mostly in the Northeast. According to Rolando de Aguilar, president of the company's online division Ames.com, his company is at a disadvantage online because a lot of its customer base — lower-income households — don't have credit

cards or computers, the basic necessities of e-commerce.

"Eighty percent of our [store] sales are cash, with an average \$22 purchase," de Aguilar said in a presentation made at last week's National Retail Federation (NRF) show for online marketing, nrf.com. "Our customer doesn't use credit cards, and they have lower household Internet penetration."

Ames.com only posts Web promotional circulars and photos of store goods because these circulars drive sales in the brick-and-mortar world. Next month, Ames.com will test the e-commerce waters for real by selling items priced at \$20 to \$250. But Ames doubts its customer base will buy into Internet buying

## Making customers "E-ware"

**Retail stores are attracting higher customer spending by combining their brick-and-mortar store, catalog and Web sales platforms:**

- Fifty-one percent of the online shoppers who received the retailer's catalog looked for or purchased something online that was seen in the catalog.
- Store shoppers who visit a retailer's Web site purchase 8% more frequently and have 24% higher transaction amounts compared with the average shopper.

**Note:** The National Retail Federation's "Channel Surfing" survey includes answers from 1,768 store shoppers, 502 catalog customers, 12,768 online buyers making purchases and 3,235 customers after they received the goods.

until "the TV set becomes the portal to the Internet," de Aguilar acknowledged.

But other retailers are barrel-

ing along on the Internet.

The Home Depot, which has 1,022 stores, mostly in the U.S., has tightly coupled Internet

sales to its brick-and-mortar stores. "We call it 'localized e-commerce,'" says Ellen Dracos, director of Homedepot.com. "We don't have national pricing on our merchandise mix. So we completely integrated our online efforts with each store."

An online shopper enters a ZIP code to get into homedepot.com, where he can shop at the nearest Home Depot, with order fulfillment at the store. Home Depot's Las Vegas store in August became the first to do this, with more Home Depot stores scheduled to become Web-friendly next year.

JCPenney, a \$4 billion retailer, has 11,000 stores, a print catalog and its online mart at See **E-comm**, page 96

## Optical, continued from page 1

issues regarding the convergence of IP and optical. Among them are who should "own" the intelligence of the optical network — router vendors or optical switch vendors? Another is coordination of signaling and control plane functions between routers and optical cross connects.

There are also contrasting viewpoints on how many electrical-to-optical conversions are necessary in an IP optical network, and where in the network these conversions should occur.

"The big question is, what's going to make the end-to-end decisions, the router or the switch? There are fundamental religious wars here," says Shaym Jha, a vice president at Corvis, a maker of optical add/drop multiplexers, switches and other gear.

Corvis believes in keeping optical switching and routing decisions separate, yet making both control plane functions interoperable.

"Switching should be left to the optical network," Jha says. "IP companies live in the routed world. What doesn't make sense is the router telling the switch which route to take."

Yet the brains for optical switches haven't been entirely baked yet, Jha admits. Switching and routing control functions for optical network bandwidth provisioning as well as route restoration and protection are still evolving in the Optical Internetworking Forum and the International Telecommunication Union, he says. The Optical Domain Service Interconnect coalition is also working on optical signaling standards.

"Control in the optical network is being worked out as we

speak," Jha says.

The Internet Engineering Task Force's Multi-protocol Label Switching (MPLS) specification is viewed as one key way to coordinate the signaling and control plane functions between IP routers and optical switches. Indeed, some optical standards bodies are devising a Multi-protocol Lambda Switching (MP Lambda S) protocol to engineer traffic in optical networks the same way MPLS steers traffic in routed nets.

In routed networks, MPLS adds a "label" to an IP packet or flow to steer that traffic through the network. MPLS can be used for explicit routing, fast rerouting, "hard" quality-of-service constraints, and for routing with nonunique addresses, such as in setting up private user groups in VPNs, says Yakov Rekhter, a Cisco Fellow engineer and one of the architects of MPLS.

Rekhter presented a conference session at Interop on MPLS and MP Lambda S.

Similarly, optical wavelengths — or different colors of light — can be used as the "labels" for steering traffic through optical networks. As a control plane protocol for optical cross connects, MP Lambda S can be used to provision optical channels, facilitate dynamic, reconfigurable networks, and as an integration point for optical cross connects, wavelength division multiplexers and routers, Rekhter says.

Indeed, the same signaling mechanisms that are used in routed MPLS — the Resource

Reservation Protocol and Constraint Routing-Label Distribution Protocol — can be used to set up and tear down paths in optical networks, he says.

"Label-switched paths can span both routers and optical cross connects if they share the same control plane," Rekhter says. "[MP Lambda S] trivializes control coordination problems among network elements [and] simplifies hybrid administration" between routers and optical cross connects, he says.

Corvis' Jha says it's premature to usher in MP Lambda S.

"You should have one control plane in the optical network, one in the routed network, and they should interoperate," he says. "MP Lambda S will happen but perhaps not in its current form."

Corvis has demonstrated interoperability between its optical gear and routers from Cisco, Juniper and Avici. The demonstration showed how the Corvis optical network can steer routed traffic — from up to 160 routers on one fiber, Jha claims — to a destination.

Control plan issues aside, conversion issues — optical to electrical, and optical to electrical to optical (OEO) — are also generating discussion in the IP/optical realm. Converting electrical impulses to light, and light to electrons, can introduce performance delays in the network and make equipment and services more expensive to procure and provision.

VIPswitch, a maker of terabit-capable Ethernet switches for metropolitan-area networks (MAN), says the OEO issue is one for long-haul networks.

"In the MAN, it's a different issue — cost," says Yves Hupe, director of product marketing for the Montreal switch maker. "What is the cost point between going electrical vs. going optical? Up to 10 terabit/sec, electrical is efficient. Beyond that point, optical has a definite advantage."

Others are anxious to turn up the light on the metro and access infrastructure.

"Why should we go through all of the intermediate mappings?" asks Paul Zalloua, director of product marketing for LuxN, a maker of optical access platforms designed to extend optical services from the MAN point of presence to enterprise customer premises at 2.5G bit/sec. "Our goal is to map everything in light. Why not take T-1 into optics?"

Zalloua says another issue to be worked out in the convergence of IP and optics is network monitoring. Some of the same constructs used to monitor traffic in the packet world will not be suitable in the wavelength world, he says. "Counting packets dropped and received is not going to scale up," he says. ■

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E-comm,  
continued from page 95

jcpenny.com. The online store sells more than 200,000 items and posted \$192 million in sales last year, with \$300 million expected for this year.

As K-mart, Service Merchandise and

others now do, goods bought online can be returned to a JCPenney store, which increases foot traffic to the stores. Jcpenny.com has also had an auction component since April (managed by the auction application service provider Fairmarket) in which consumers can place their low-ball bids on a range of goods, giving

JCPenney a kind of online outlet for discounted or discontinued items.

Already bringing in millions of dollars, "Our auction liquidator site is an important piece of our business and an important part of our future," says George Stasick, chief operating officer at jcpenny.com. The vice president of

development of the online operation, Ron Hanners, says JCPenney is giving its stores credit on online sales based on zip codes to bolster cooperation across these two sales channels.

Jcpenny.com, which recently made an investment in the Documentum Web portal content-management software, is structured to report to the company's print catalog division, a decision that has worked well, the executives say.

The NRF last week released the results of a survey called "Channel Surfing," which indicated that shoppers who buy in the three "channels" — the store, the Web and the catalog — purchase more annually than "single-channel" shoppers.

The survey, a first effort by NRF to understand multichannel buying habits, means "the threat of the Internet to stores is not as much as first thought," said Cathy Pringle, vice president at The Bombay Company, with 360 stores, a catalog and an online store.

Service Merchandise, with 221 stores, a catalog and the servicemerchandise.com Web site, sells \$1.5 billion annually in jewelry and household goods. The company is now bringing the Web into the store through Web kiosks, those that use NCR flat screens, so customers can order goods online.

The retail chain sells a larger selection of items online than in the store, says David Seifert, vice president of e-commerce. Next month, Service Merchandise will have its battalion of call center representatives ready to answer customer questions through chat and e-mail — and they will be credited with sales commissions just like in-store clerks. "We call this the 'store-Web-phone' concept," he says.

Business-to-business e-commerce is also on the minds of the retailing industry, but a panel discussion at nrf.com shows that between individuals organizing two competing business-to-business exchanges — the Global Net Exchange and the World Wide Retail Exchange (WWRE) — there's little momentum yet.

Mike Frank, vice president of development at Target, which founded the WWRE based on Ariba and i2 Technologies software, acknowledges the exchange is still struggling to get its business and technology operations in place.

Jerry Miller, senior vice president and chief information officer at Sears, Roebuck & Co., which is a founding member of the Global Net Exchange, expects to see the Oracle-based marketplace start processing transactions next month.

"We expect \$5 to \$7 billion of this by the end of the year to be from Sears alone," says Miller, adding the exchange's total volumes may reach \$20 billion. Miller notes that the exchange's members make a commitment to put 75% of their total spending through the exchange for the first three years. ■



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# Backspin

## Sinners? Amen, Brother Gibbs!

inners! That's what we are. Brothers and sisters, we are all sinners and do you know what is making us even more sinful? The Internet! (Let me hear you say, "Amen.")

Now I don't just mean regular sinning. After all, who cares if you surf with one hand while looking for "novel" pictures of Britney Spears. (Let me hear you say, "Hallelujah!")

At least theologically, who gives a damn if you spam? (Let me hear you say, "We do! String 'em up!")

No, brothers and sisters, I am talking about the Big Seven! The Seven Deadly Sins are alive and well and being fostered by the Internet.

Now let me just remind you what the Big Seven are: Pride (otherwise known as Vanity or Hubris), Envy, Gluttony, Lust, Anger (or Wrath), Covetousness (aka Greed) and Sloth.

Let's start with Pride: The excessive belief in one's own abilities, also referred to as the sin from which all others arise.

Here's a sin so commonplace on the 'Net that it defies belief. (Let me hear you say, "I don't believe it!")

For example, just consider those me-too pet food Web sites that were funded with tens of millions of dollars and, despite collecting eyeballs by the truckload, will never show a profit.

I can think of a couple of these dot-coms with sites that look like crap but whose CEOs are still making it sound like they are saving the world. There's Pride for you.

Envy: The desire for others' traits, status, abilities or situation, is everywhere on the 'Net. Everyone wants to be a 'Net god, a Kibo, or to become one of the big boys of the business and to have the power to make and break deals. (Let me hear you say, "That deal has got legs! If we can get traction with the venture

capitalists and runway in the market we can rule the 'Net!")

Gluttony: An inordinate desire to consume more than one requires. This is also called the Napster sin because so many Napster users acquire more music than they can listen to in a dozen incarnations.

Lust: An inordinate craving for the pleasures of the body, which brings us back to Britney Spears. (Let me hear you say, "Oh, give us a break!")

Anger: Manifested in all sorts of 'Net scenarios and nowhere more so than in the individual who spurns love and opts instead for fury. Just consider anger as triggered by our desire for instant gratification as fostered by the 'Net.

The concept of instant gratification became a key theme of the 20th century and not without reason. As Western society has accelerated its pace in the last half of the century and broadened its communication abilities, the drive to get what we want, when we want it has become a cornerstone of how we determine if we are satisfied by products, services and personal interactions. (Let me hear you say, "Needless philosophizing!")

So if our gratification appears later than some arbitrary time threshold we think appropriate — a threshold that gets ever shorter on the Internet — we bitch and moan endlessly. *Voila!* Anger.

Covetousness: The desire for material wealth or gain, ignoring the realm of the spiritual. Hell, this is what drives the 'Net economy! See that guy? He's a dot-com millionaire! What's he got that I haven't? Pure luck, that's what. I could be a dot-commie too 'cause I'm loaded with ability (see Pride), etc., etc.

Finally, there's Sloth: the avoidance of physical or spiritual work. Isn't that what dot-coms are all about? Who wants to dig a ditch, for heaven's sake? (Let me hear you say, "IPO!")

*So sinners, let me hear you confess to [nwcolumn@gibbs.com](mailto:nwcolumn@gibbs.com).*



MARK  
GIBBS

# 'NET BUZZ



The latest on the  
Internet industry

**This Global Positioning System** stuff is getting too cool and too freaky for words.

Imagine that someone or something you truly care about — your car, pet or teenage child, for example — has been stolen, wandered away from home or ignored your explicit warning not to attend the "Sex-Crazed Drug Addicts" concert held two towns over.

Should one of these misfortunes come calling, **Televoke** will let you know immediately via phone, pager, e-mail or the Web, provided the person/thing you value has been "location-enabled," as the company calls it; in other words, outfitted with a GPS device. Buzz visited the Televoke booth at NetWorld+Interop 2000 last week in Atlanta and came away convinced that, for better or worse, this Big Brotherish eye-in-the-sky stuff is about to make the leap from fanciful vendor hype to practical services.

How much? They are talking less than \$10 a month to keep tabs on Fido, Junior or perhaps your luggage.

Consumers aren't the only target audience, either, as the system could be used to monitor delivery trucks or the corporate cars of a sales staff.

"It does get to be an issue with unions," says **John Caner**, Televoke's vice president of marketing.

But I'll bet the unions are an easier sell than would be a 16-year-old who just got his driver's license.

**Speaking of freaky**, Buzz had his first "virtual reality" experience at N+I thanks to the marketing folks at Deutsche Telekom, who were using the medium to tout their T-online service.

With a goggles-and-headphones assembly firmly in place atop my noggin, the five-minute presentation whizzed by in what seemed like 30 seconds. Think of it as a combination of a roller coaster ride and a Star Wars dogfight. Your mind may know that it's all special effects, but that doesn't stop your hand from grabbing a balance pole and hanging on for dear life.

The presentation was impressive, though not exactly pleasurable, as I get sick on amusement park rides and have had my fill of Star Wars.

But here's what should be the bigger concern for Deutsche Telekom: Once back in real reality, I couldn't tell you the first detail about T-online.

**Let's shelve the political correctness** and 'fess up: Buzz went to watch **Carly Fiorina's** conference keynote address primarily to see how the industry's most prominent "SheEO" measures up to the endless parade of male CEOs who dominate these forums. My guess is I wasn't the only one curious because the hall was wall-to-wall with showgoers eager to hear from the **Hewlett-Packard** boss who just finished her first year at the helm.

Well, Fiorina certainly demonstrated that she can do the CEO keynote thing every bit as well as the good ol' boys. The trouble is that's faint praise at a time when trade show keynotes have become indistinguishable from corporate marketing propaganda.

Fiorina presents flawlessly, conveys an air of authority, and explains the HP game plan with a clarity that any couch potato could comprehend, which helps cover up boilerplate platitudes such as: "I believe we are entering the Renaissance of the information age," and, "Down-time now costs real money."

The biggest problem, though, is a listener couldn't help but feel as though he had been transported from the networking industry's premier trade show to an HP customer convention. Maybe those in attendance actually *were* anxious to hear Fiorina's point-by-point laundry list of her company's recent product announcements, but that seems unlikely.

Male or female, CEOs are first and foremost salespeople.

So the burden falls to show organizers to exert whatever influence they have to make these keynotes more than 45-minute infomercials.

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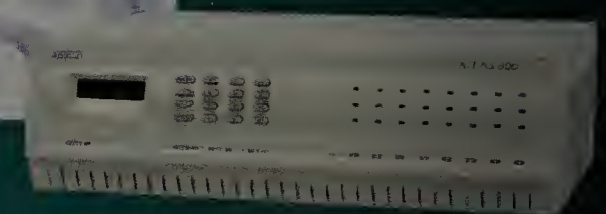
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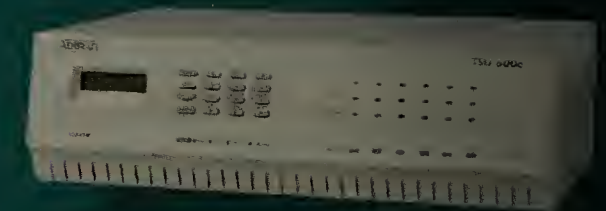
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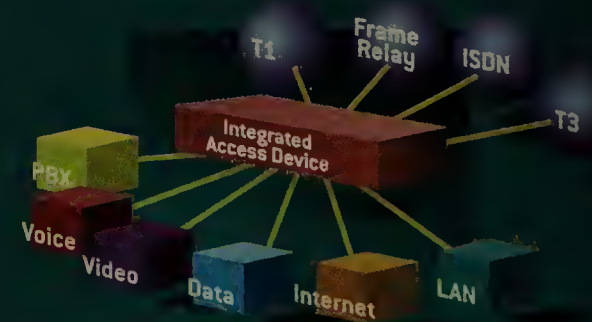
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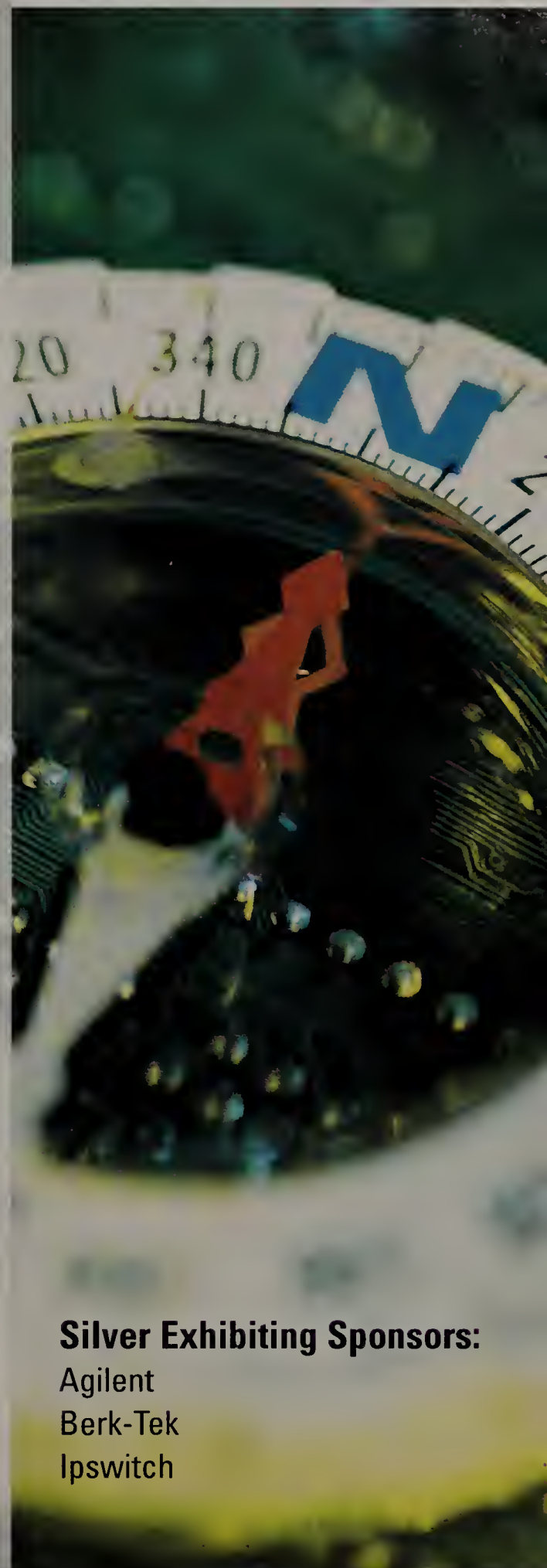


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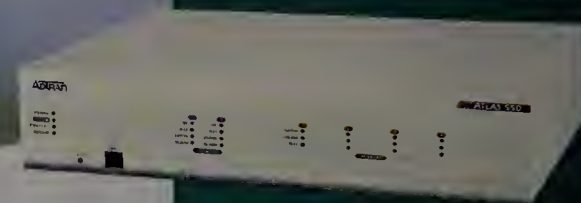
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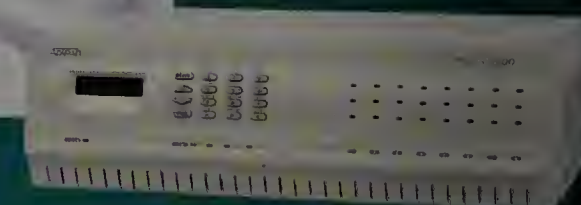


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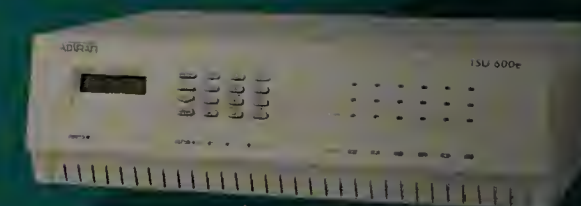
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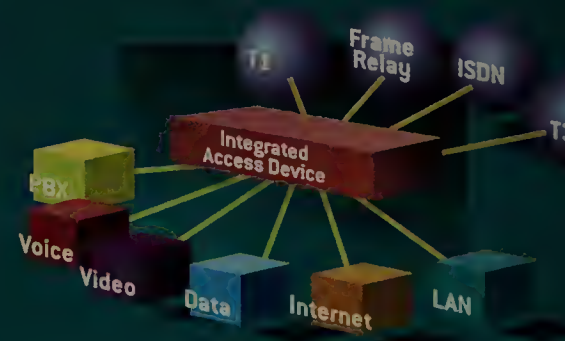


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